

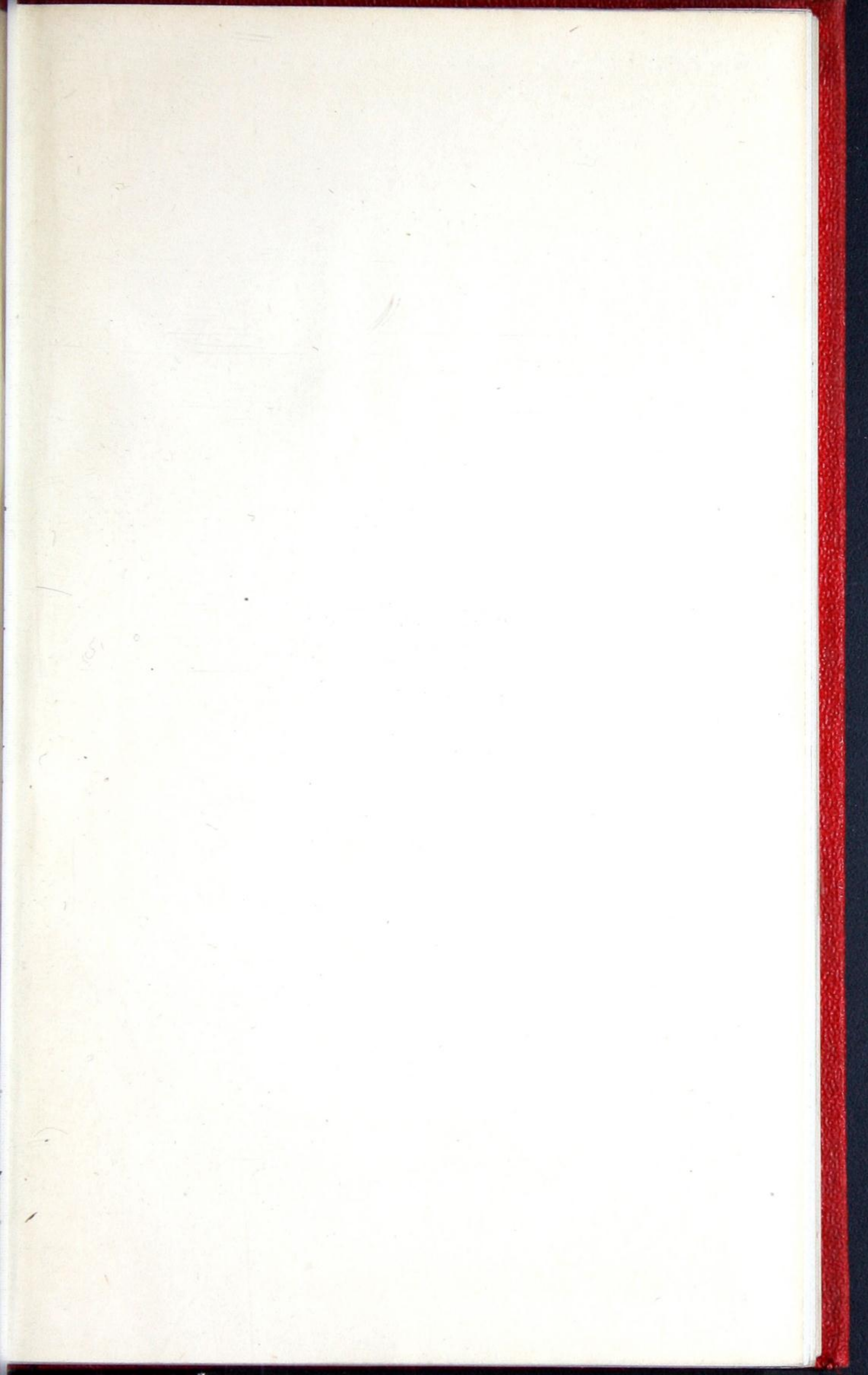
TAYLOR-FORBES

Sovereign
Boilers
Radiators
Heating Specialties

1925-26

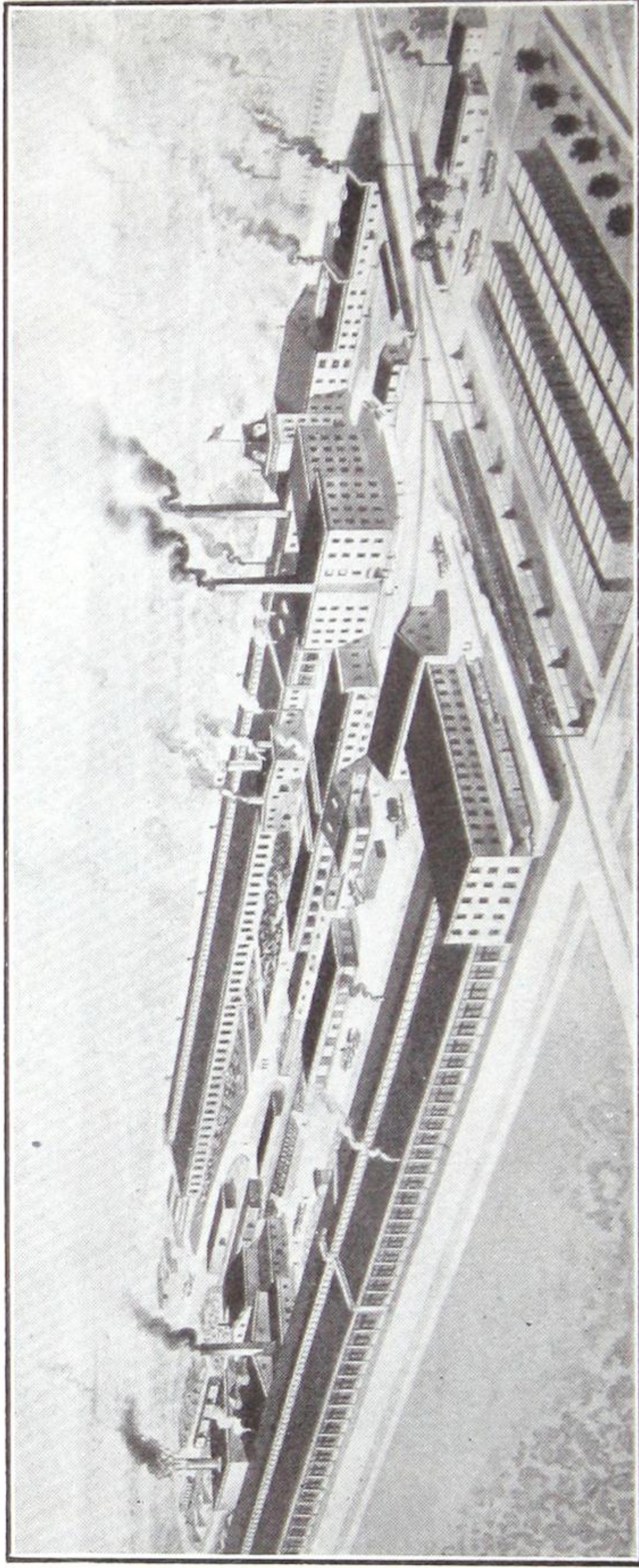
FITTERS' CATALOGUE

No. 85 R



TAYLOR-FORBES COMPANY, LIMITED

Incorporated 1902



General view of factories, covering nearly fifteen acres of ground.

Fitters' Catalogue

No. 85R

Sovereign Boilers and Radiators 1925



TAYLOR-FORBES COMPANY
LIMITED

Head Office & Works

GUELPH

WINNIPEG
REGINA
CALGARY

TORONTO MONTREAL VANCOUVER

Hamilton, London, Windsor, Ottawa, Edmonton, Victoria.

QUEBEC
ST JOHN
HALIFAX

Branches and Sales Offices

General Executive Office and Factories,
GUELPH, ONTARIO

BRANCHES

MONTREAL.....246 Craig Street West
TORONTO.....1088 King Street West
VANCOUVER.....1070 Homer Street

SALES AGENTS

Victoria

ANDREW SHERET.....1114 Blanchard Street

Calgary

BELL & MORRIS ..338 8th Ave., West

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ENGINEERS' AND PLUMBERS' SUPPLY CO., LTD.

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W. H. CAMPBELL.....16 Water Street

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GUILDFORD & SONS, LTD.....136 Upper Water St.

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S. ELLIOTT & Co.....Gear Building

TAYLOR-FORBES COMPANY, LIMITED

GUELPH, CANADA

Foreword

IN this edition of our Sovereign Boiler and Radiator Handbook, No. 85R, we offer a most complete and up-to-date range of boilers and radiators for heating purposes.

During our thirty-nine years of experience in the heating industry we have built up two modern plants equipped to turn out our products, made of the best materials possible, and in such a scientific manner as to insure the utmost reliability and satisfaction. Our President was the first producer to introduce the present type of vertical section screw nipple radiators to the world. (Statements to the contrary by other manufacturers notwithstanding.)

Coupled with these the fact that we are established from coast to coast it can be readily seen our opportunity to render more and better service to the general public.

We have worked out the heating surfaces of our boilers and radiators on scientific principles, having used the most modern mathematical appliances under the direction of a scientific master of the art to enable us to embody in the construction of our patterns the maximum of surface consistent with well defined rules, only known to those who have had practical experience in the construction of heating apparatus.

We cordially invite you to visit our head office and works at Guelph or any of our branch warehouses where we will be only too pleased to show our products.

Sincerely yours,

TAYLOR-FORBES COMPANY, LIMITED

“New Sovereign” Hot Water Boiler

Burns Any Kind of Fuel

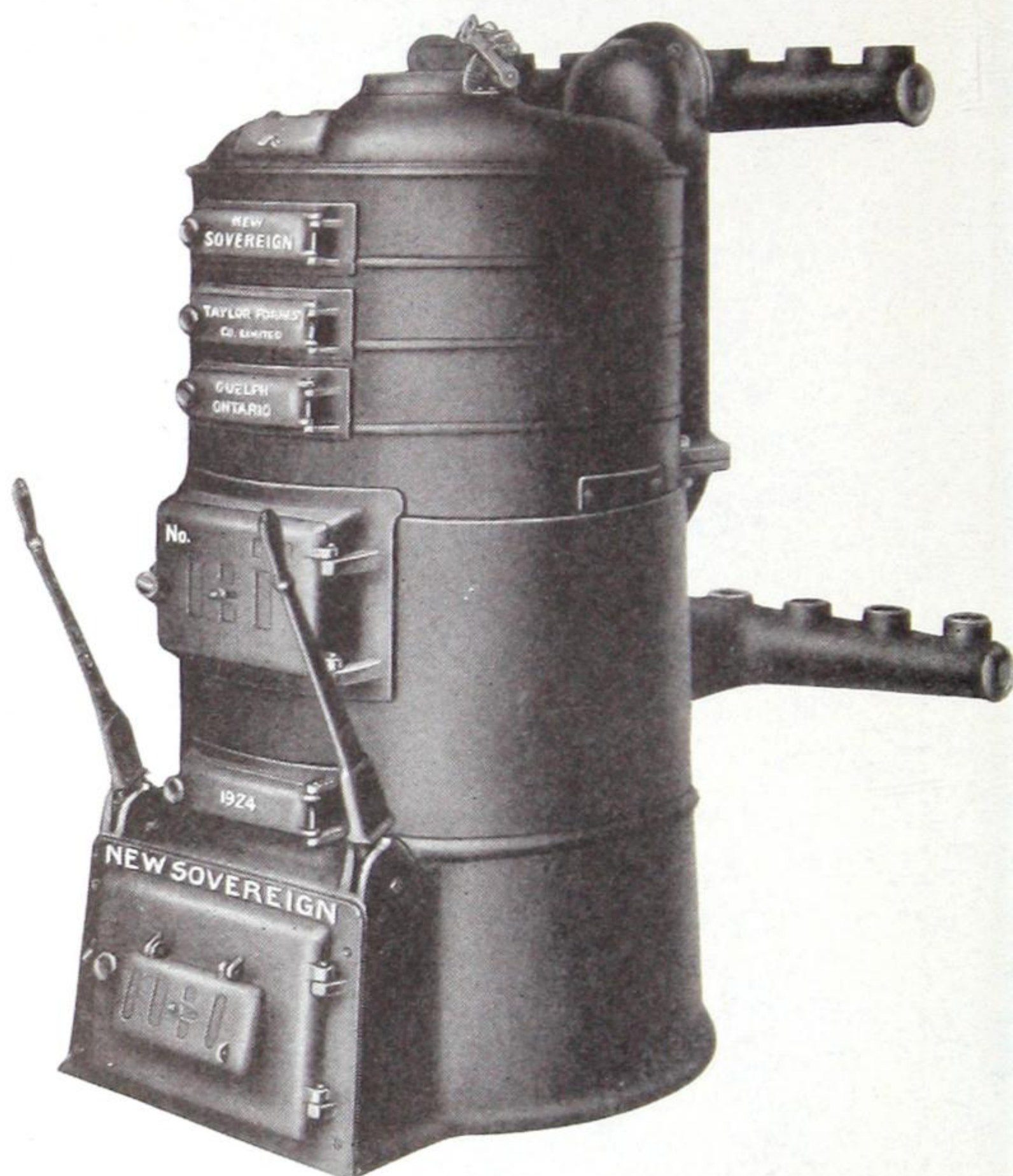


Fig. B 36

Ratings and data page 7. Rating conditions page 27.

Roughing in measurements pages 12-13.

Telegraph Code, pages 203-212

Note—Prices on “New Sovereign” High Base Boilers may be quoted on request.

“New Sovereign” Hot Water Boiler

RATINGS AND DATA

Size of Boiler	Net Rating Square Feet	Gross Rating Square Feet	Inside Diameter of Fire Pot Inches	Depth of Fire Pot Inches	Height of Boiler to Top of Header Inches	No. and Size of Header Tappings Inches		Size of Single Tap- ings, Flow and Return. Inches	Diameter of Smoke Pipe. Inches
						Flow	Return		
0C	250	375	16½	17¾	46¼	3-2	4-2	3½	7
1C	270	405	16½	17¾	50¼	3-2	4-2	3½	7
1½C	300	450	19½	18¼	48¼	4-2	5-2	4	7
2C	365	550	19½	18¼	52¾	4-2	5-2	4	7
2½C	420	630	21½	18¾	49¼	4-2	5-2	4	8
3C	500	750	21½	18¾	53¾	4-2	5-2	4	8
3½C	585	875	24½	19¼	51⅞	6-2	7-2	5	8
4C	685	1025	24½	19¼	56⅞	6-2	7-2	5	8
4½C	750	1125	26½	19¾	52⅞	6-2	7-2	5	10
5C	835	1250	26½	19¾	57⅞	6-2	7-2	5	10
5½C	935	1400	28½	20¼	56⅞	8-2	9-2	6	10
6C	1000	1500	28½	20¼	61⅞	8-2	9-2	6	10
6AC	1100	1650	30½	20¾	58	8-2	9-2	6	10
6½C	1250	1875	30½	20¾	62½	8-2	9-2	6	10
6½AC	1350	2025	32½	21¼	60	9-2	10-2	6	12
7C	1500	2250	32½	21¼	64¼	9-2	10-2	6	12
7½C	1765	2650	36	21¼	60⅞	9-2	10-2	6	12
8C	2000	3000	36	21¼	64⅞	9-2	10-2	6	12

SIZE OF CHIMNEY FLUE RECOMMENDED IN INCHES

Size of Boiler	Round Flue	Square Flue	Size of Boiler	Round Flue	Square Flue
0C & 1C	7	8½ x 8½	5½C & 6C	10	8½ x 12½
1½C & 2C	8	8½ x 8½	6AC & 6½C	11	8½ x 12½
2½C & 3C	8	8½ x 8½	6½AC & 7C	12	12½ x 12½
3½C & 4C	9	8½ x 10	7½C & 8C	12	12½ x 12½
4½C & 5C	10	8½ x 12½			

“New Sovereign” Hot Water Boiler

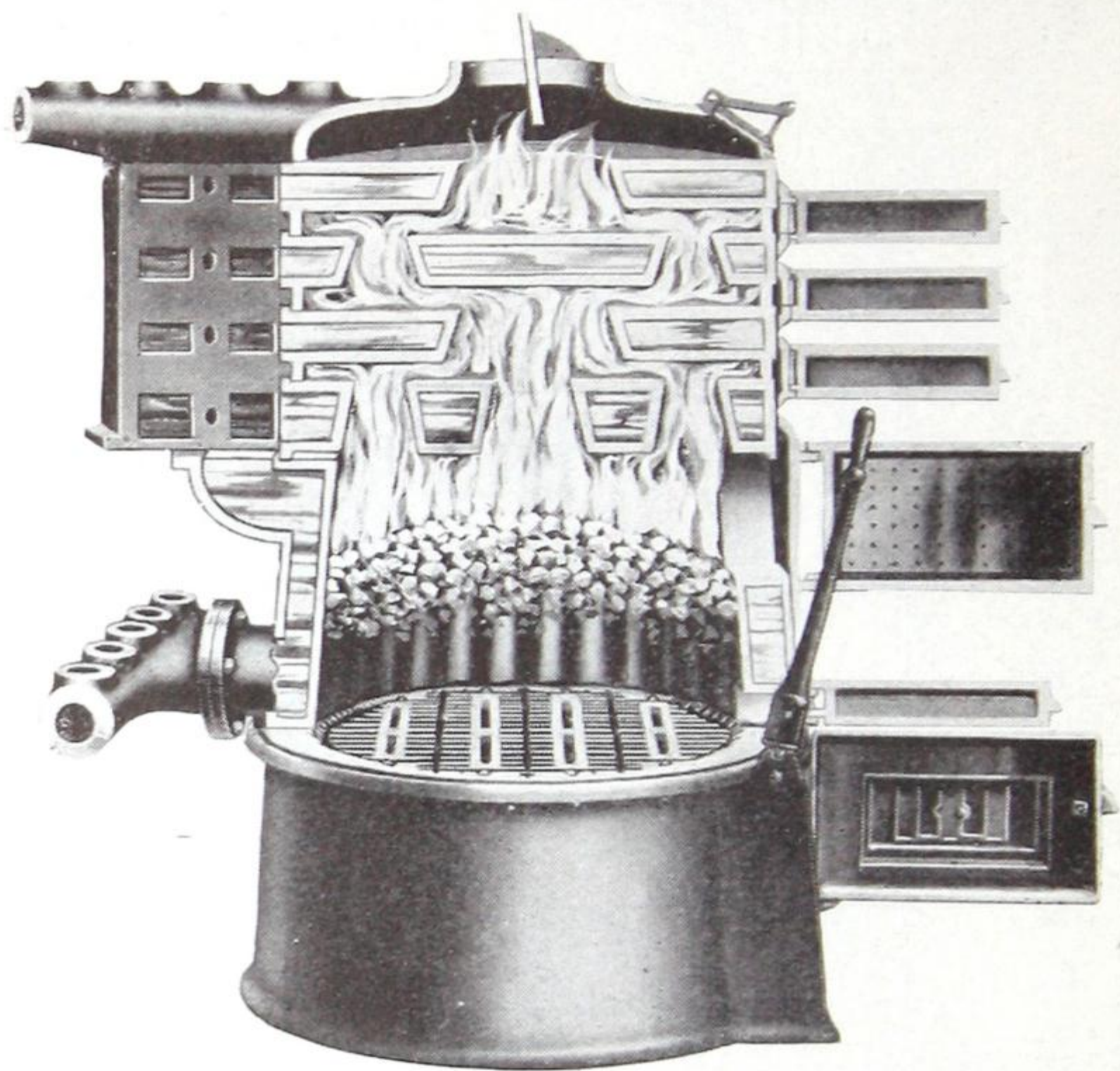


Fig. A 35

Interior view showing fire travel and easily cleaned sections.

“New Sovereign” Hot Water Boiler

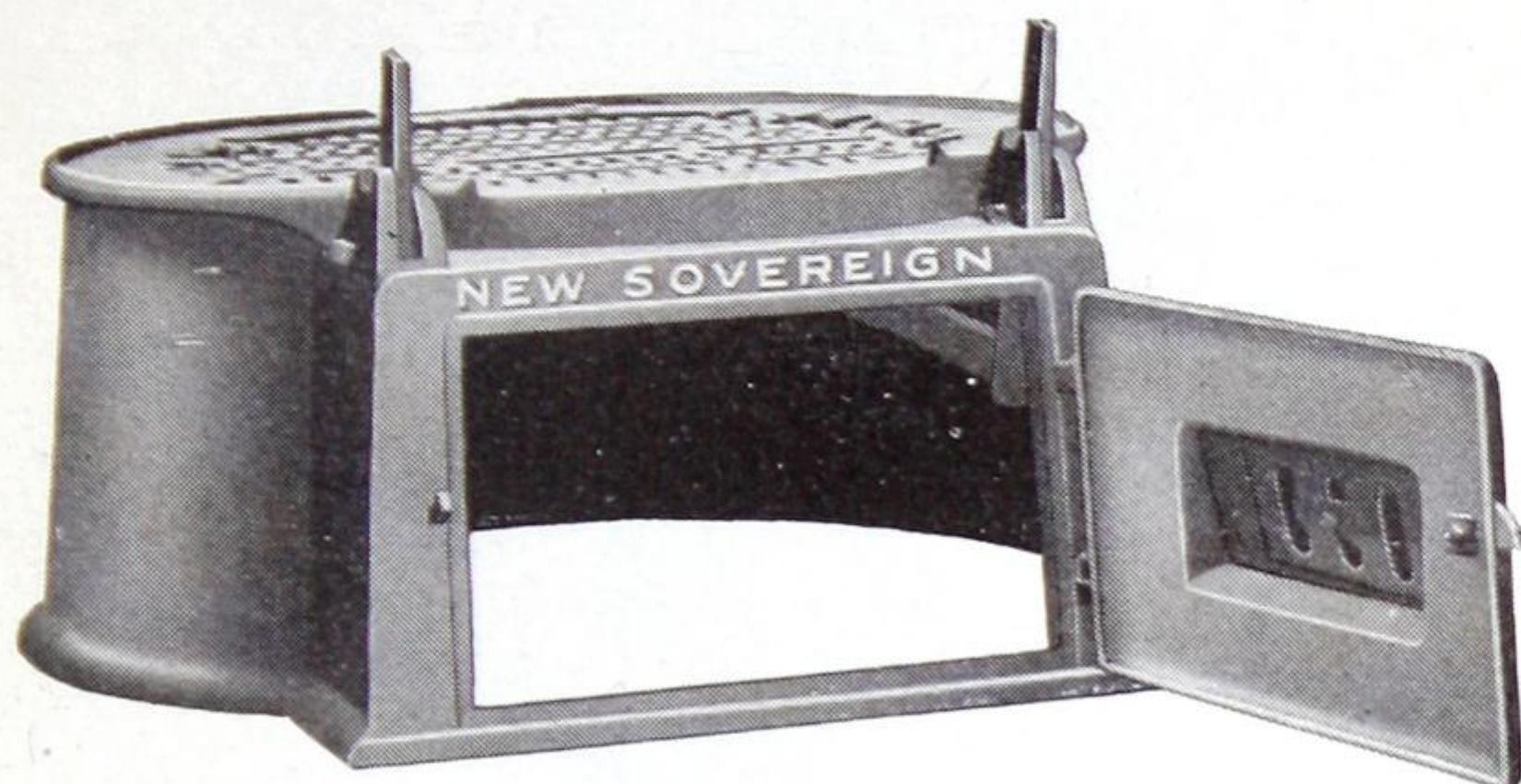


Fig. 52

General view of base with front shaker.



Fig. 53

Sectional view of base, showing mechanism of the
Cotter-Pinless Grate.

Taylor-Forbes "Thermo" Damper For Fuel Economy



Fig. 25

Made in four sizes to fit the smoke collar of any
"New Sovereign" Boiler.

Taylor-Forbes Domestic Water Heater For "New Sovereign" Boilers



Fig. 7

DIMENSIONS AND DATA

No. of New Sovereign Boiler, Heater Will Fit	Size of Tappings Inches	Centre to Centre of Tappings Inches	Length Overall Inches	Width Overall Inches
0C to 3C	1	3½	10	9½
3½C to 6C	1	3½	18	10¾
6AC to 8C	1	3½	26½	10¾

All "New Sovereign" Boilers have two holes cored between the fire pot and first section on both sides of the boiler with removable plates through which connections can be made with domestic water heaters.

Headers, Western Pattern, for "New Sovereign" Boilers

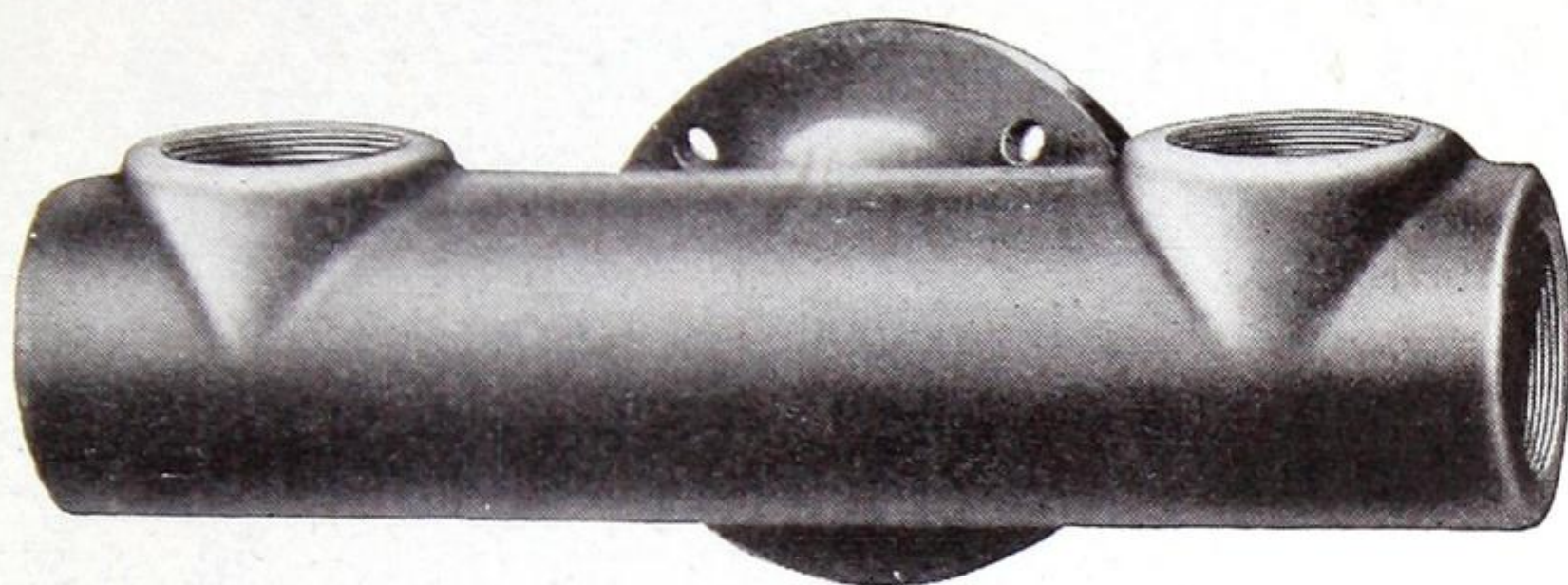


Fig. 38
Flow Header

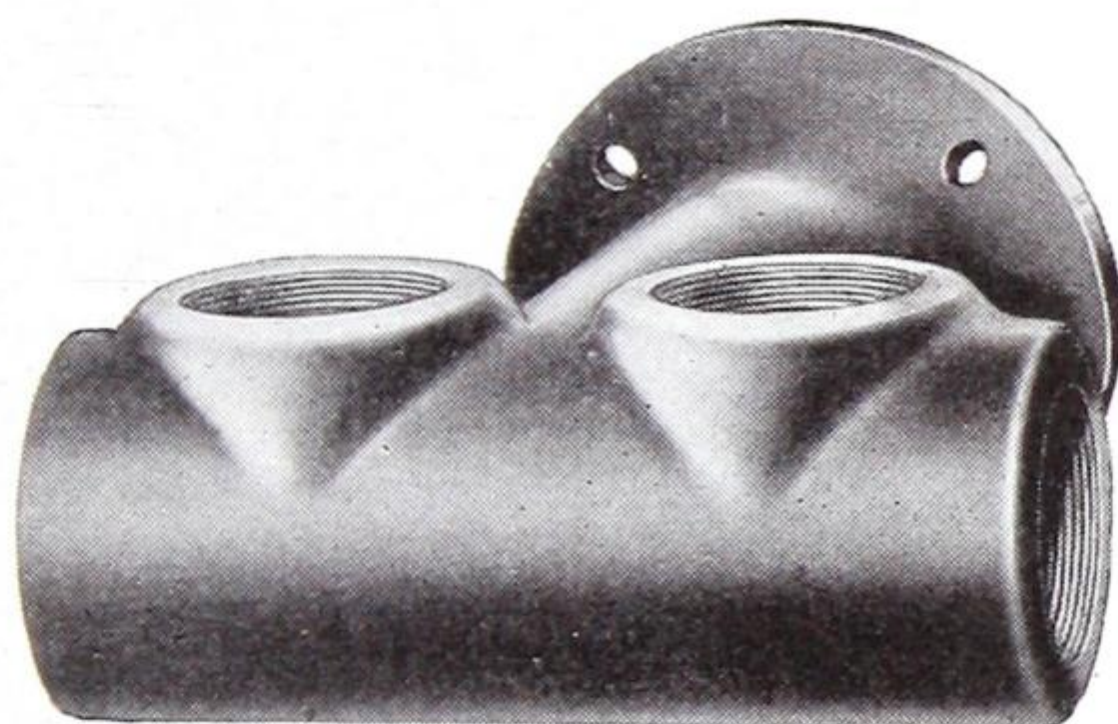


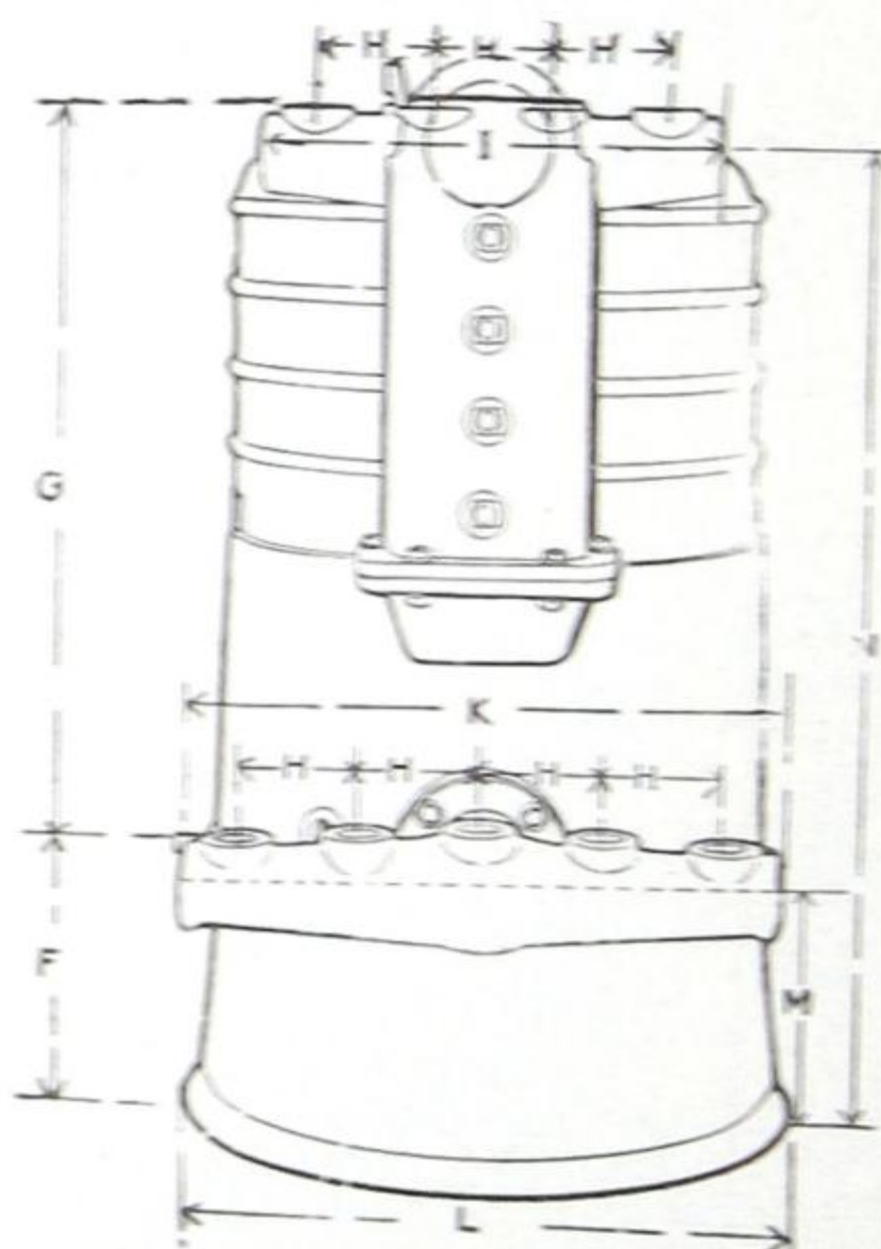
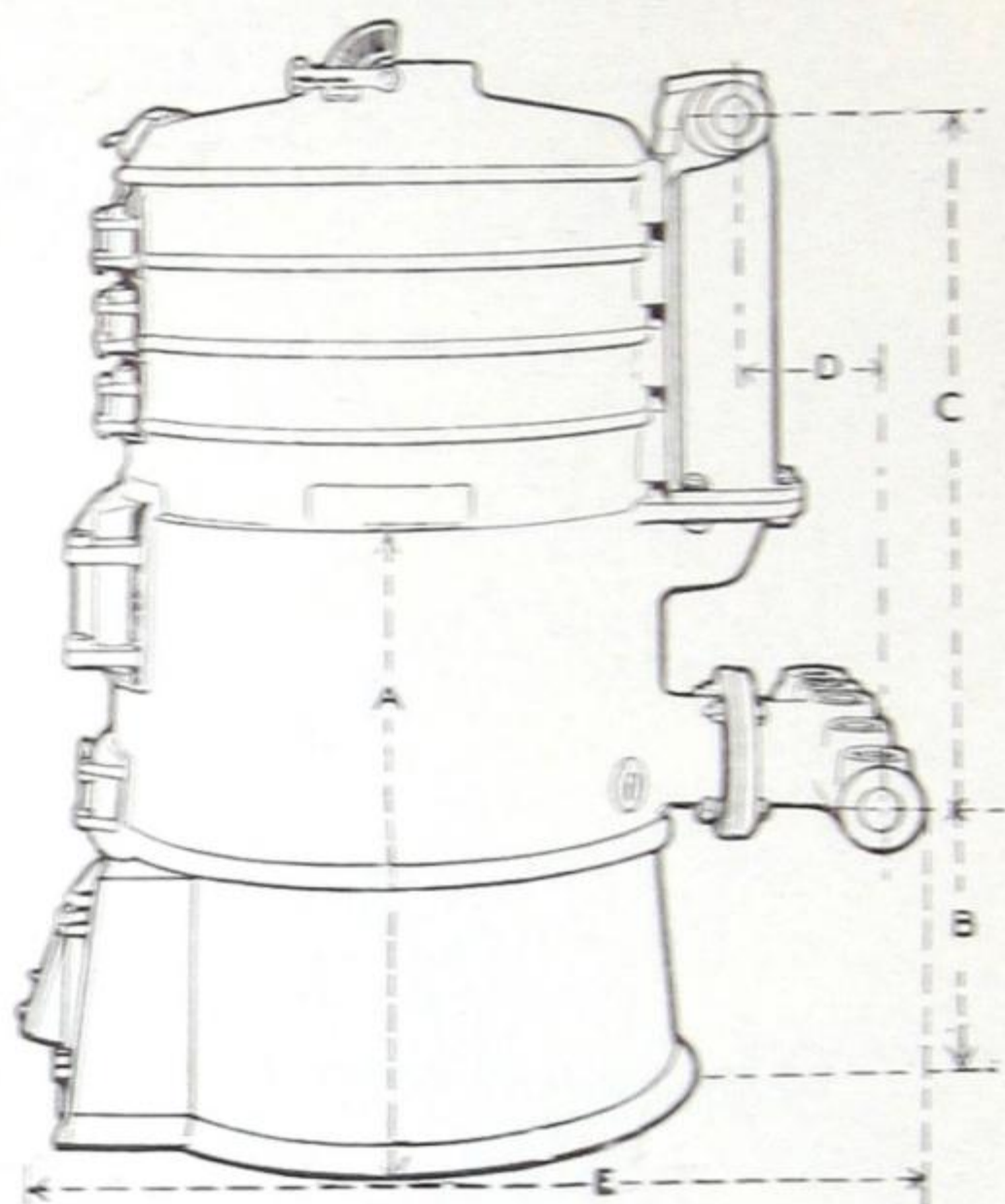
Fig. 39
Return Header

DIMENSIONS AND DATA

No. of New Sovereign Boiler Headers Will Fit	Flow and Return Header Tappings Top Inches	Flow and Return Header Tappings End Inches	Length Flow Header Overall Inches	Length Return Header Overall Inches	Centre to Centre of Flow Openings Top Inches	Centre to Centre of Return Openings Top Inches
1½C to 3C	2-4	2-2	27⅜	16⅜	18⅞	7¾
3½C to 5C	2-4	2-3	27⅜	16⅜	18⅞	7¾
5½C to 8C	2-4	2-4	27⅜	16⅜	18⅞	7¾

"New Sovereign" Hot Water Boiler

Roughing in Measurements



“New Sovereign” Hot Water Boiler

TABLE OF DISTANCES BETWEEN POINTS AS INDICATED
ON PAGE 12.

All Measurements are in Inches.

Size of Boiler	LETTER OF INDICATION												
	A	B	C	D	E	F	G	H	I	K	L	M	N
0C	29	15½	29½	6¼	37⅝	17¾	28½	6	8	11½	24	15½	45
1C	29	15½	33¼	6¼	37⅝	17¾	32½	6	8	11½	24	15½	48¾
1½C	29½	16⅞	30⅜	6¾	41	18⅜	29⅞	6	11¼	17¼	26¾	16⅞	46½
2C	29½	16⅞	34⅞	6¾	41	18⅜	34⅜	6	11¼	17¼	26¾	16⅞	51
2½C	30½	16⅞	30⅝	6⅞	43⅞	19⅞	30⅞	6	11¼	17¼	28¾	16⅞	47½
3C	30½	16⅞	35⅞	6⅞	43⅞	19⅞	34⅝	6	11¼	17¼	28¾	16⅞	52
3½C	31½	17½	32	7½	48¼	20⅜	31½	6	23¼	29¼	32	17½	49¾
4C	31½	17½	36¾	7½	48¼	20⅜	36¼	6	23¼	29¼	32	17½	54¼
4½C	32½	18¼	32¼	7½	50½	21⅞	31¾	6	23¼	29¼	34½	18¼	50½
5C	32½	18¼	37	7½	50½	21⅞	36½	6	23¼	29¼	34½	18¼	55¼
5½C	33½	18⅞	34⅞	4⅝	59⅝	21¾	34⅞	6½	37¼	43¾	36¾	18⅞	53¾
6C	33½	18⅞	39⅜	4⅝	59⅝	21¾	39⅜	6½	37¼	43¾	36¾	18⅞	58¼
6AC	34¼	19⅞	35⅜	4⅝	62⅞	22⅝	35⅜	6½	37¼	43¾	39¼	19⅞	54½
6½C	34¼	19⅞	39⅞	4⅝	62⅞	22⅝	39⅞	6½	37¼	43¾	39¼	19⅞	59
6½AC	34¾	19⅞	37⅜	4⅝	65½	22⅝	37⅜	6½	44	50½	41¼	19⅞	56½
7C	34¾	19⅞	41⅝	4⅝	65½	22⅝	41⅝	6½	44	50½	41¼	19⅞	60¾
7½C	35	19¼	37⅜	4⅞	69¾	22¾	37⅜	6½	44	50½	45¼	19¼	56¾
8C	35	19¼	41⅝	4⅞	69¾	22¾	41⅝	6½	44	50½	45¼	19¼	60⅞

“New Sovereign” Hot Water Boiler With Twin, Triple or Quadruple Headers

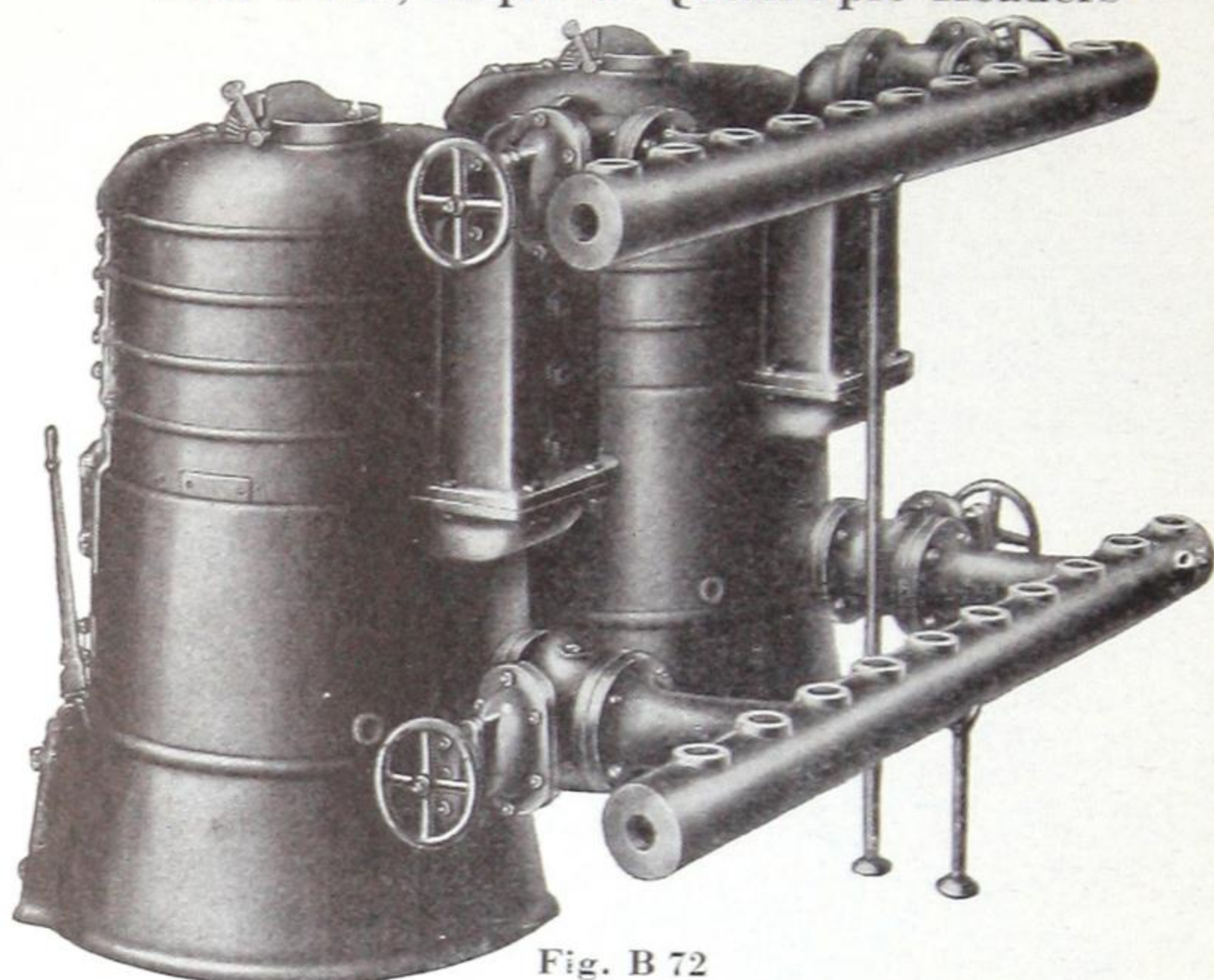


Fig. B 72

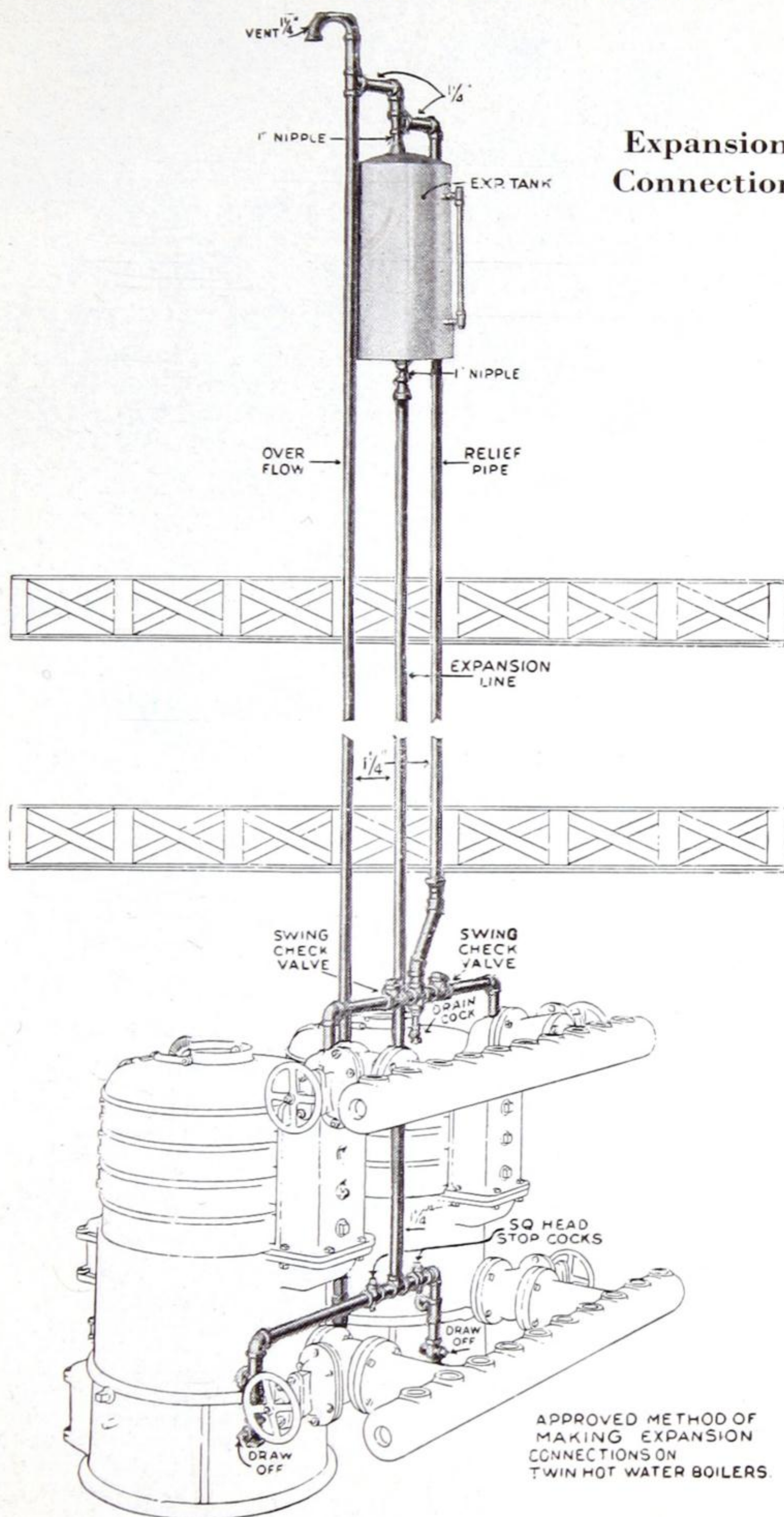
DATA—TWIN CONNECTIONS ONLY

Size of Boilers	Number of 2-inch openings on Top of Headers. End Openings are 2-inch	Diameter of Flanges Inches	Inside Diameter of Headers Inches	Size of Valves Inches
1½C	6	8¾	4	4
2C	6	8¾	4	4
2½C	8	8¾	4	4
3C	8	8¾	4	4
3½C	8	9	5	5
4C	8	9	5	5
4½C	10	9	5	5
5C	10	9	5	5
5½C	10	10¾	6	6
6C	10	10¾	6	6
6AC	12	10¾	6	6
6½C	12	10¾	6	6
6½AC	14	10¾	6	6
7C	14	10¾	6	6
7½C	18	10¾	6	6
8C	18	10¾	6	6

See page 15 showing expansion relief connections.
Roughing in measurements Twin Boilers, pages 16-17.

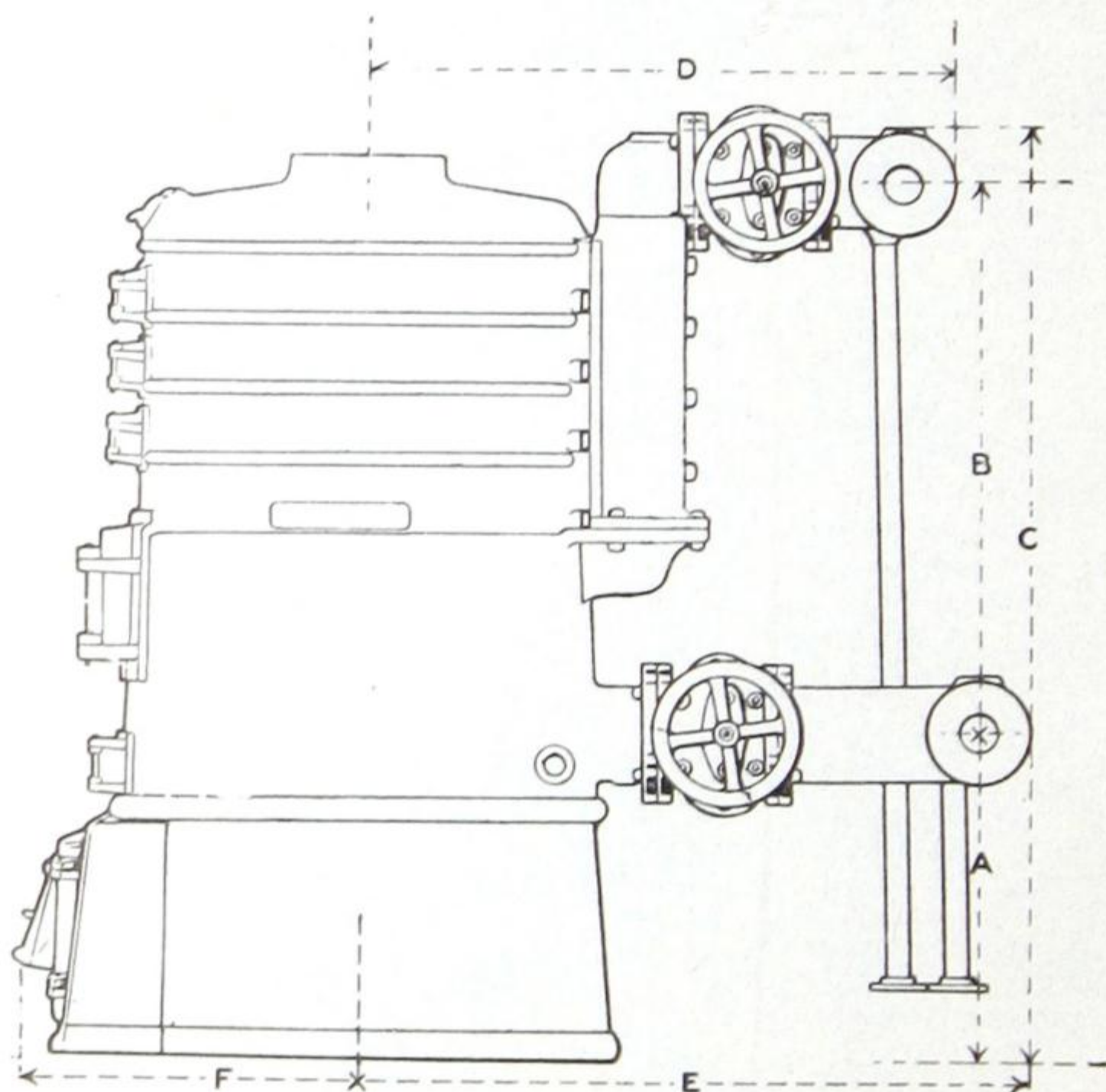
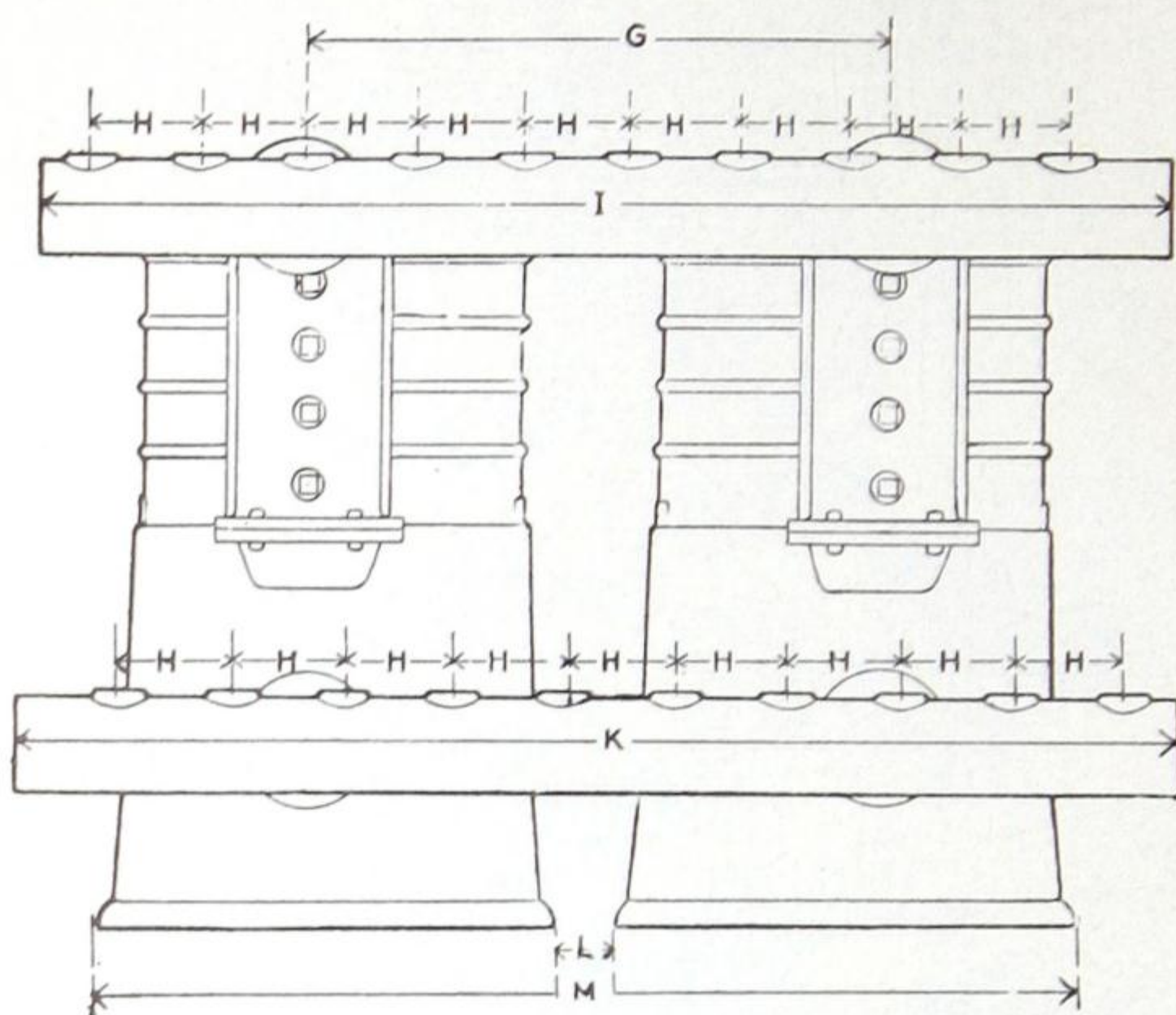
“New Sovereign” Twin Boilers

Expansion Connections



APPROVED METHOD OF
MAKING EXPANSION
CONNECTIONS ON
TWIN HOT WATER BOILERS.

“New Sovereign” Twin Boilers **Roughing in Measurements**



“New Sovereign” Twin Boilers

TABLE OF DISTANCES BETWEEN POINTS AS INDICATED
ON PAGE 16

All Measurements are in Inches.

Size of Boilers	LETTER OF INDICATION											
	A	B	C	D	E	F	G	H	I	K	L	M
1½C	16½	30¾	49½	33¼	37¼	17	32	7	44	44	5¼	58¾
2C	16½	34¾	54	33¼	37¼	17	32	7	44	44	5¼	58¾
2½C	16¾	30⅝	50½	34⅛	38¾	18	33¾	7	58	58	5¼	62½
3C	16¾	35⅛	55	34⅛	38¾	18	33¾	7	58	58	5¼	62½
3½C	17½	32	53	37¼	41½	19½	37½	7	58	58	5½	69½
4C	17½	36¾	57¾	37¼	41½	19½	37½	7	58	58	5½	69½
4½C	18¼	32¼	54	38¼	42½	20¾	40½	7	72	72	6⅛	74⅞
5C	18¼	37	58¾	38¼	42½	20¾	40½	7	72	72	6⅛	74⅞
5½C	18¾	34¾	57¾	47¾	51⅝	21¾	43¼	7	72	72	6⅝	79⅞
6C	18¾	39¾	62¼	47¾	51⅝	21¾	43¼	7	72	72	6⅝	79⅞
6AC	19⅛	35¾	58¼	48⅛	52¾	23¼	45⅞	7	86	86	6¼	85½
6½C	19⅛	39⅞	63	48⅛	52¾	23¼	45⅞	7	86	86	6¼	85½
6½AC	19⅛	37¾	60½	49⅛	53¾	24½	52½	7	100	100	11¾	93⅝
7C	19⅛	41⅝	64¾	49⅛	53¾	24½	52½	7	100	100	11¾	93⅝
7½C	19¼	37¾	60⅝	51	55¼	26½	61½	7	128	128	16¾	106⅝
8C	19¼	41⅝	64⅞	51	55¼	26½	61½	7	128	128	16¾	106⅝

“New Monarch” Hot Water Boiler

Burns Any Kind of Fuel

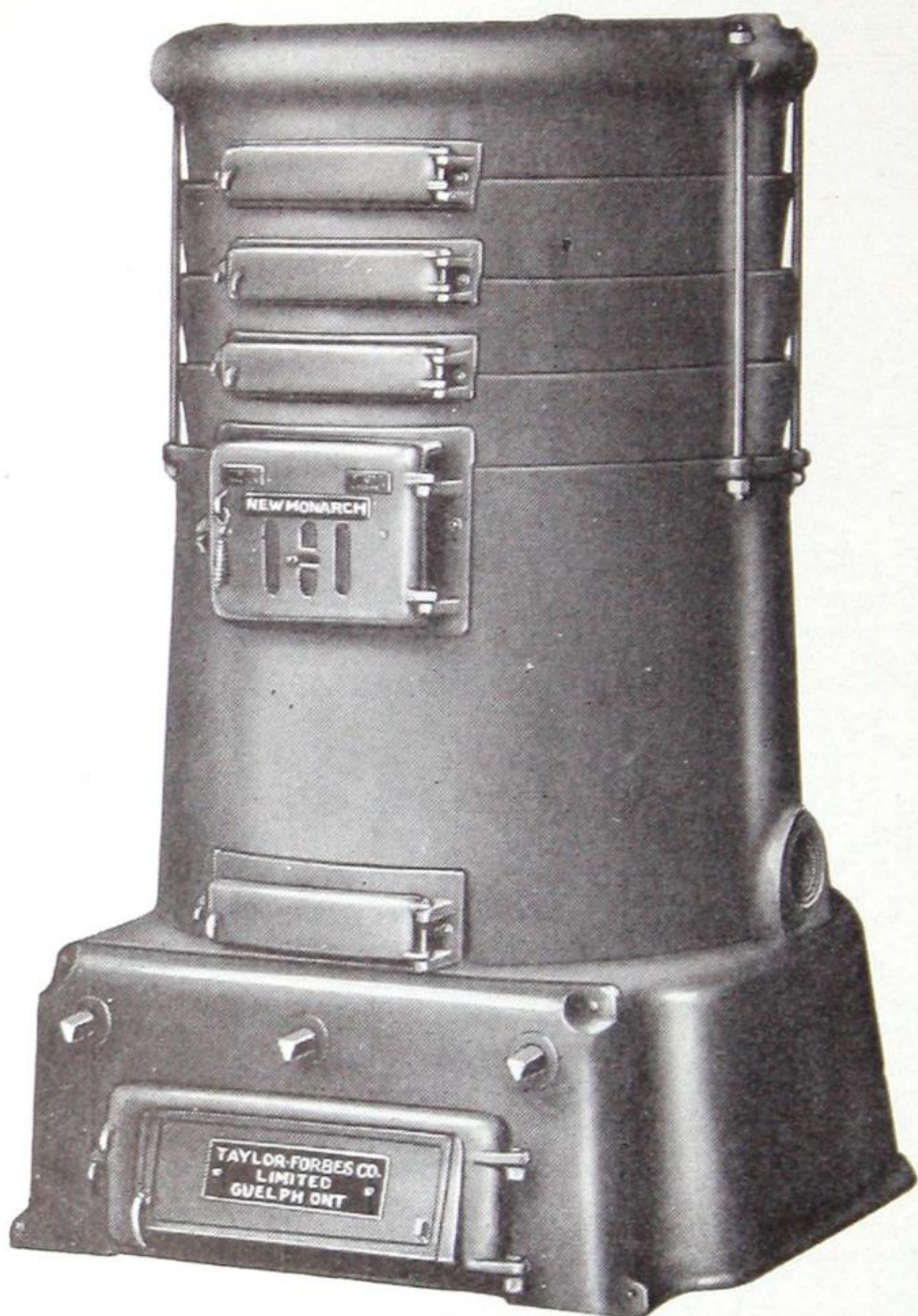


Fig. 42

New Monarch Steam Boiler, page 22.

Ratings and data, page 19. Rating conditions, page 27.

Roughing in measurements, page 24.

Telegraph Code, pages 203-212

“New Monarch” Hot Water Boiler

RATINGS AND DATA

Assemblage: Base, Fire Pot, One Intermediate Section and Dome.

Size of Boiler	Net Rating Sq. Ft.	Gross Rating Sq. Ft.	Height to Top of Boiler Inches	Inside Dia. of Fire Pot Inches	Grate Area Sq. Ft.	No. and Size of Tappings Inches		Size of Smoke Pipe Inches
						Flow	Ret'n.	
W 923	370	555	51	19	2.5	2-2½	2-2½	7
W 933	450	675	51¼	21½	3.2	2-3	2-3	8
W 943	645	965	52	25	4.1	2-3	2-3	9
W 953	835	1251	52½	28	5.6	2-4	2-4	9
W 963	1100	1650	53¾	31	6.4	2-4	2-4	10

Assemblage: Base, Fire Pot, Two Intermediate Sections and Dome.

W 924	420	630	55½	19	2.5	2-2½	2-2½	7
W 934	500	750	55¾	21½	3.2	2-3	2-3	8
W 944	695	1042	56½	25	4.1	2-3	2-3	9
W 954	935	1402	56¾	28	5.6	2-4	2-4	9
W 964	1250	1875	58¾	31	6.4	2-4	2-4	10

Assemblage: Base, Fire Pot, Three Intermediate Sections and Dome.

W 935	575	862	60¼	21½	3.2	2-3	2-3	8
W 945	770	1155	60¾	25	4.1	2-3	2-3	9
W 955	1035	1552	61¼	28	5.6	2-4	2-4	9
W 965	1450	2175	63¾	31	6.4	2-4	2-4	10

“New Monarch” Hot Water Boiler

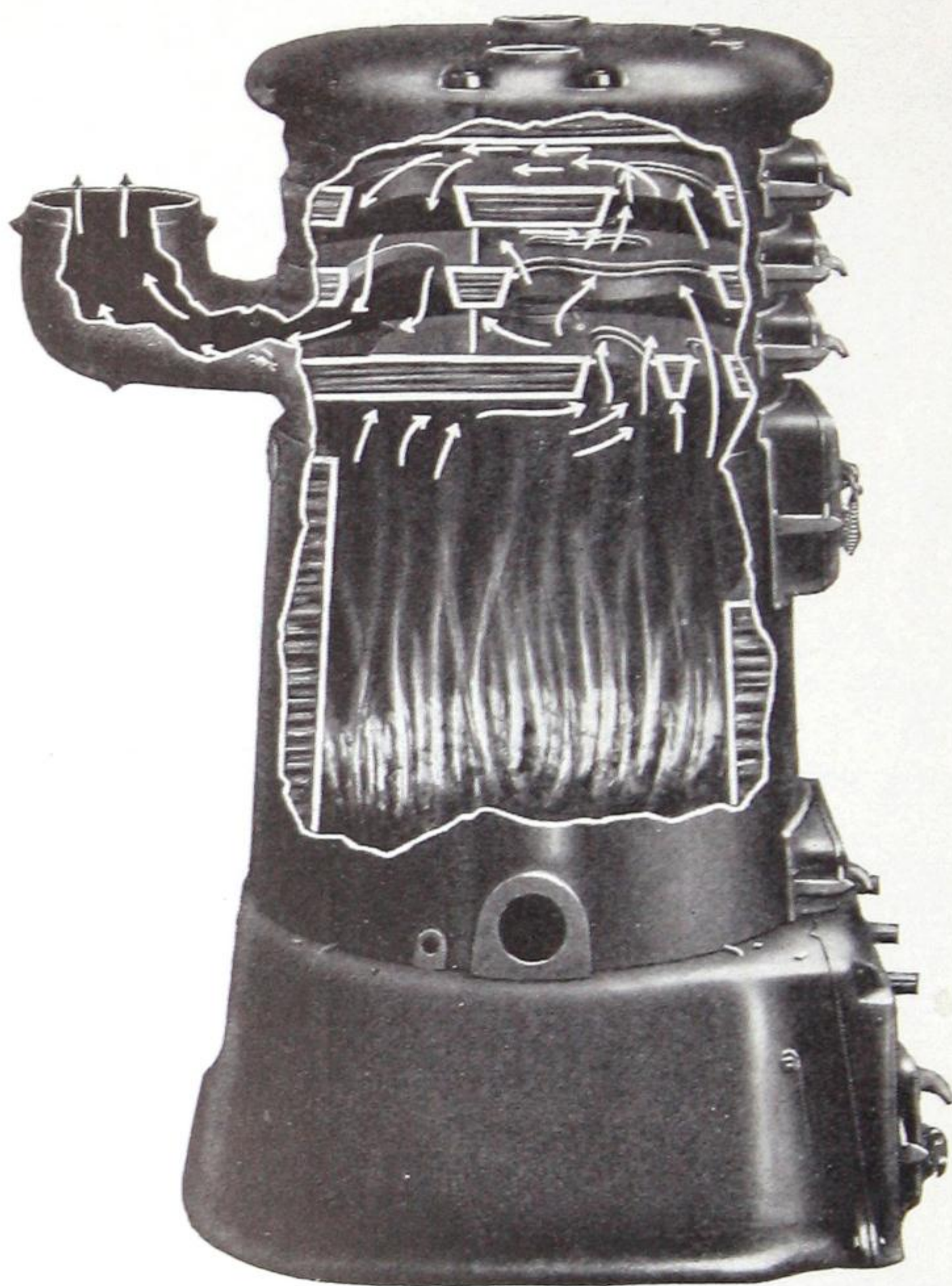


Fig. 43

Interior view showing fire travel and deep fire pot.

“New Monarch” Steam and Water Boiler

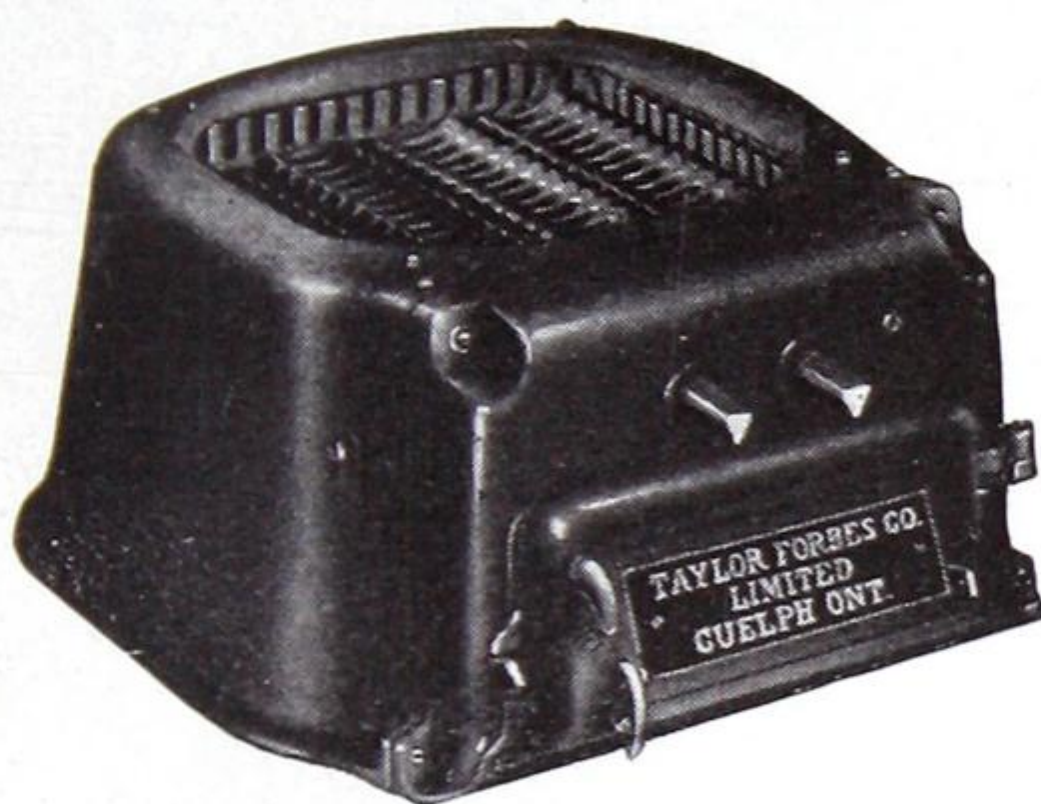


Fig. 54

General view of base.

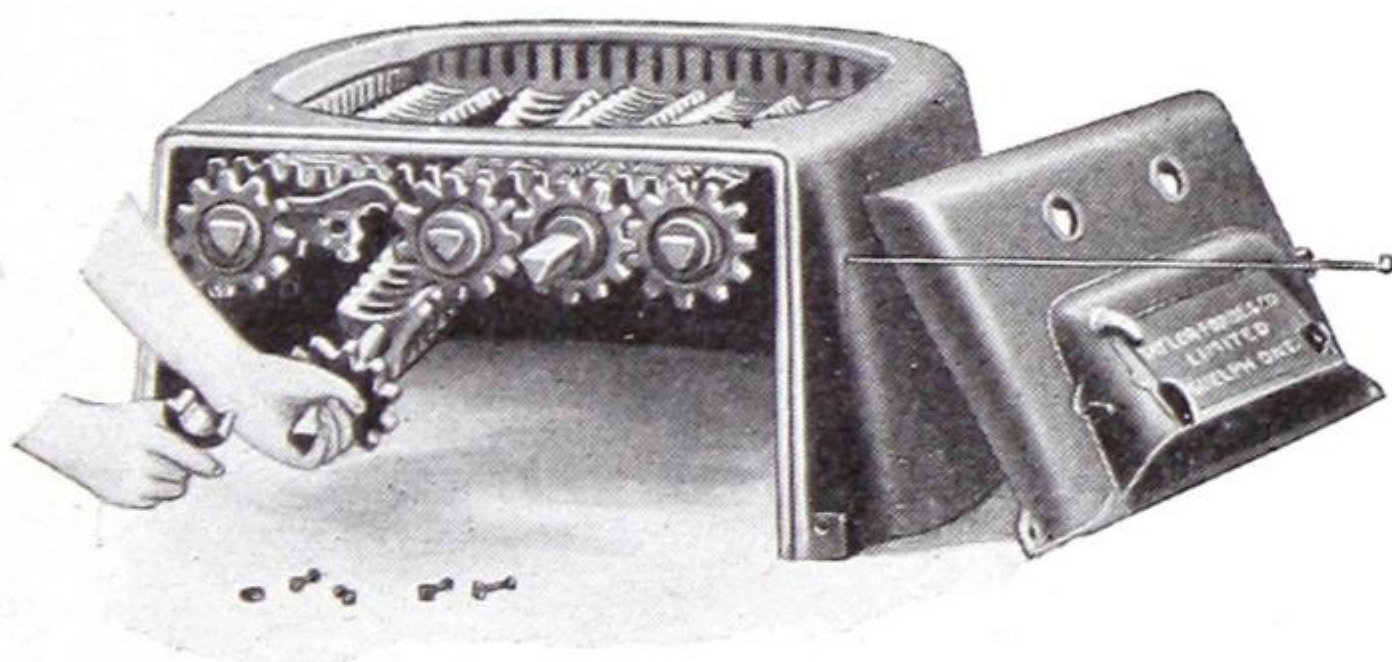


Fig. 55

Sectional view of base showing the mechanism of the triangular base.

"New Monarch" Steam Boiler

Burns Any Kind of Fuel

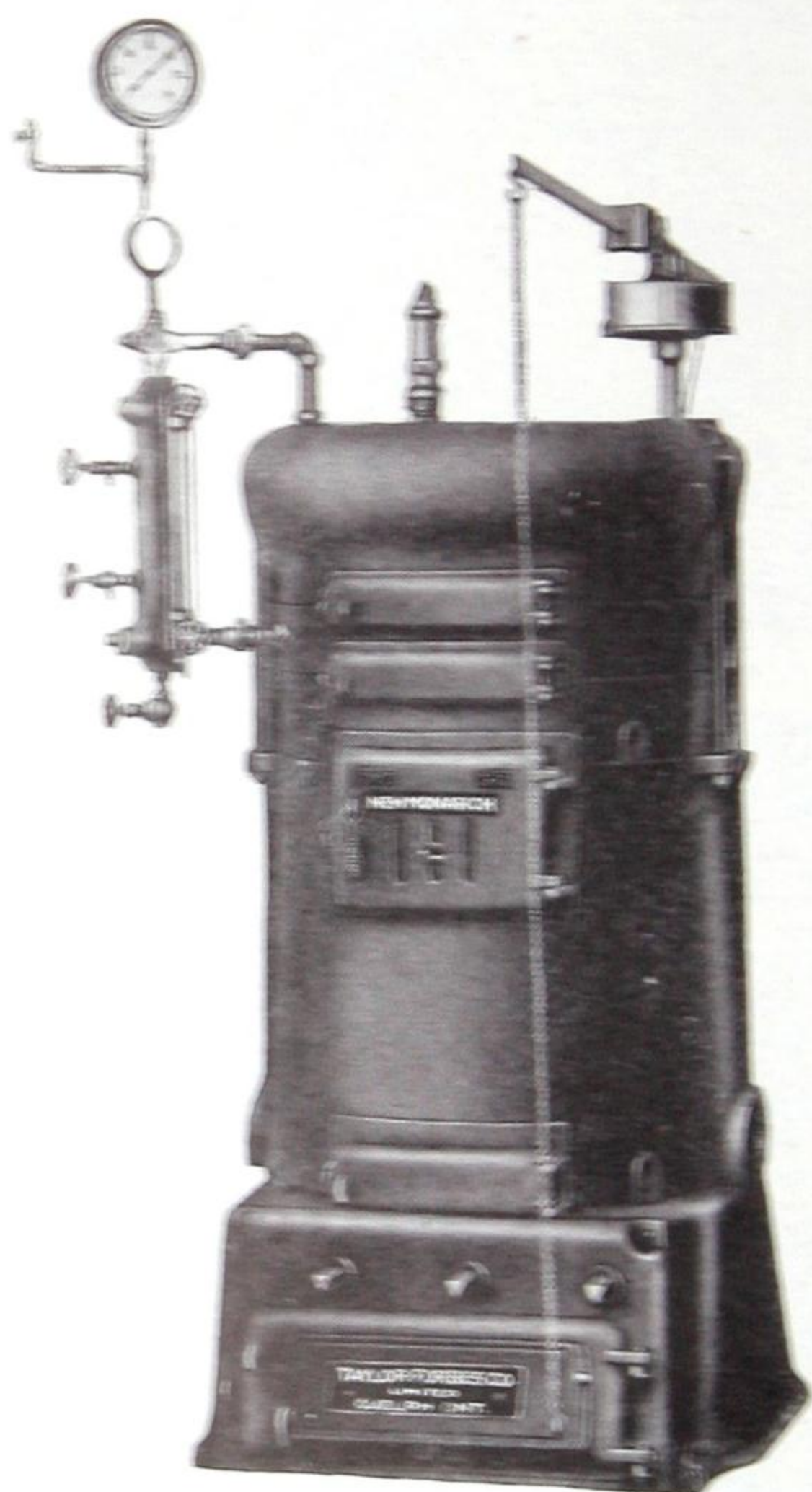


Fig. 44

New Monarch Water Boiler, page 18.

Ratings and data, page 23. Rating conditions, page 27.

Roughing in measurements, page 25.

Telegraph Code, pages 203-212

“New Monarch” Steam Boiler

RATINGS AND DATA

Assemblage: Base, Fire Pot, One Intermediate Section and Dome.

Size of Boiler	Rating Square Feet	Height to Top of Boiler Inches	Inside Dia. of Fire Pot Inches	Grate Area Square Feet	Height of Water Line Inches	No. and Size of Tappings Inches		Size of Smoke Pipe Inches
						Flow	Ret'n.	
S 923	425	53 $\frac{3}{8}$	19	2.5	47 $\frac{1}{4}$	2-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	7
S 933	500	53 $\frac{5}{8}$	21 $\frac{1}{2}$	3.2	47 $\frac{1}{8}$	2-3	2-3	8
S 943	650	54 $\frac{3}{4}$	25	4.1	48 $\frac{3}{8}$	2-3	2-3	9
S 953	900	55 $\frac{1}{4}$	28	5.6	48 $\frac{7}{8}$	2-4	2-4	9
S 963	1250	56 $\frac{3}{4}$	31	6.4	50	2-4	2-4	10

Assemblage: Base, Fire Pot, Two Intermediate Sections and Dome.

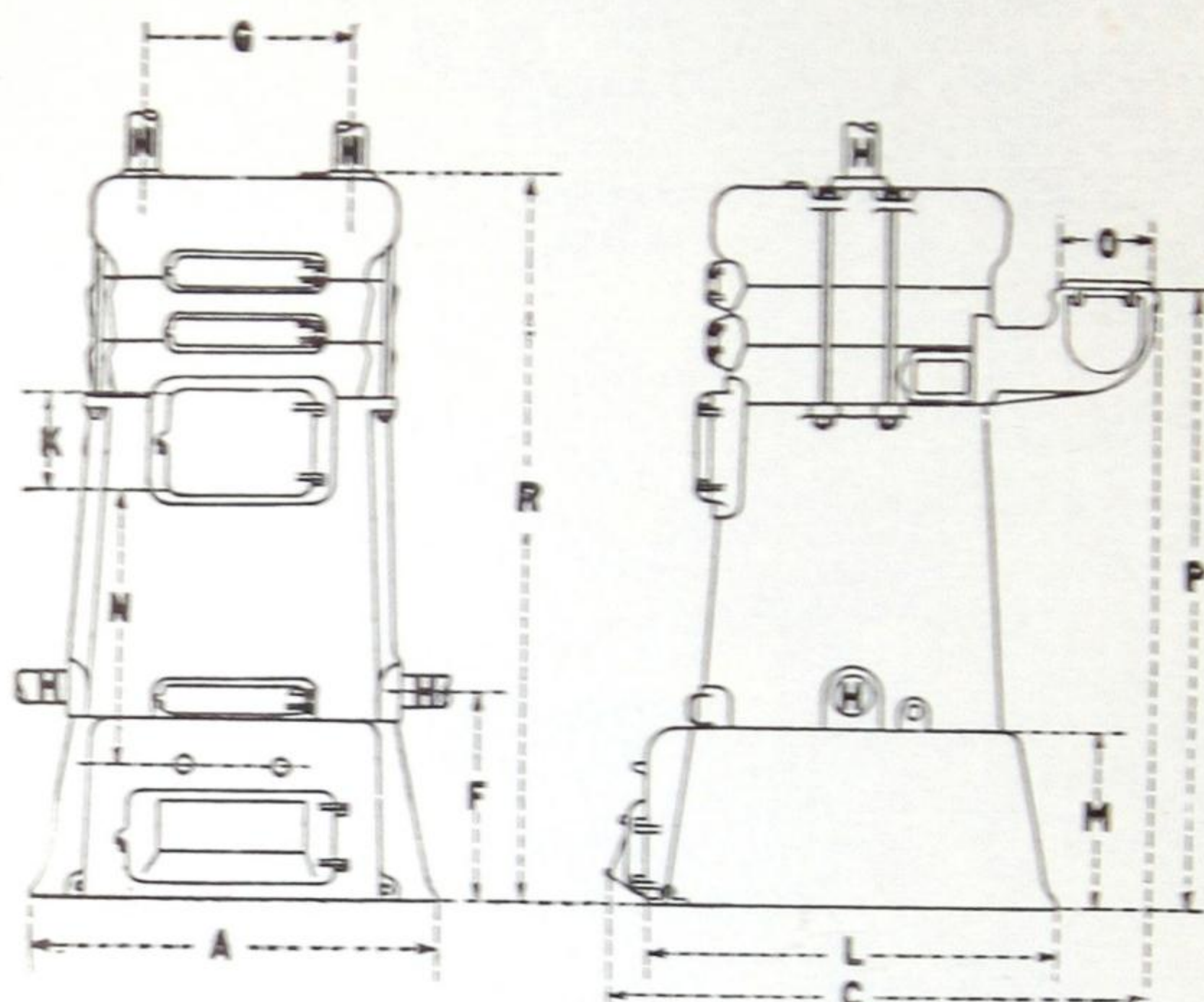
S 924	475	57 $\frac{7}{8}$	19	2.5	51 $\frac{7}{8}$	2-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	7
S 934	550	58 $\frac{1}{8}$	21 $\frac{1}{2}$	3.2	51 $\frac{5}{8}$	2-3	2-3	8
S 944	725	59 $\frac{1}{8}$	25	4.1	52 $\frac{3}{4}$	2-3	2-3	9
S 954	1000	59 $\frac{5}{8}$	28	5.6	53 $\frac{1}{4}$	2-4	2-4	9
S 964	1400	61 $\frac{3}{4}$	31	6.4	55	2-4	2-4	10

Assemblage: Base, Fire Pot, Three Intermediate Sections and Dome.

S 935	600	62 $\frac{5}{8}$	21 $\frac{1}{2}$	3.2	56 $\frac{1}{8}$	2-3	2-3	8
S 945	800	63 $\frac{1}{4}$	25	4.1	56 $\frac{7}{8}$	2-3	2-3	9
S 955	1100	64	28	5.6	57 $\frac{3}{8}$	2-4	2-4	9
S 965	1550	66 $\frac{3}{4}$	31	6.4	60	2-4	2-4	10

"New Monarch" Hot Water Boiler

Roughing in Measurements



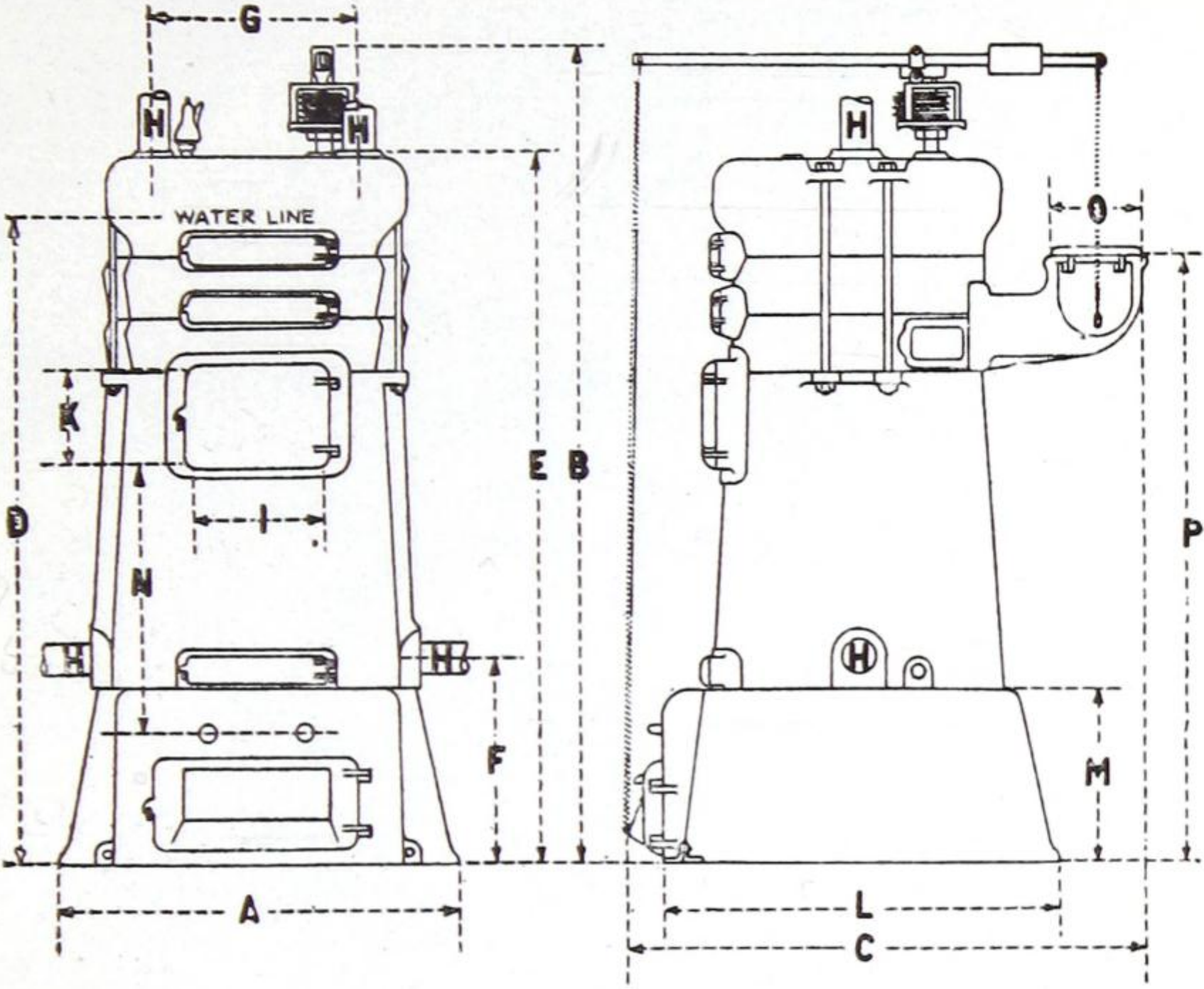
FOR DIMENSIONS A TO H, SEE PAGE 25.

Number	I	K	L	M	N	O	P	R
W 913B	9 $\frac{1}{2}$	7 $\frac{1}{2}$	26 $\frac{1}{4}$	12 $\frac{3}{8}$	17 $\frac{5}{8}$	7	45 $\frac{3}{8}$	47 $\frac{3}{4}$
W 914B	9 $\frac{1}{2}$	7 $\frac{1}{2}$	26 $\frac{3}{4}$	12 $\frac{3}{8}$	17 $\frac{5}{8}$	7	45 $\frac{3}{8}$	52 $\frac{1}{4}$
W 923	10 $\frac{1}{2}$	8 $\frac{1}{2}$	29 $\frac{3}{4}$	13 $\frac{1}{2}$	19 $\frac{1}{2}$	7	47 $\frac{5}{8}$	51
W 924	10 $\frac{1}{2}$	8 $\frac{1}{2}$	29 $\frac{3}{4}$	13 $\frac{1}{2}$	19 $\frac{1}{2}$	7	47 $\frac{5}{8}$	55 $\frac{1}{2}$
W 933	12	8 $\frac{1}{2}$	31 $\frac{1}{2}$	13 $\frac{3}{8}$	19 $\frac{1}{4}$	8	48 $\frac{1}{8}$	51 $\frac{1}{4}$
W 934	12	8 $\frac{1}{2}$	31 $\frac{1}{2}$	13 $\frac{3}{8}$	19 $\frac{1}{4}$	8	48 $\frac{1}{8}$	55 $\frac{3}{4}$
W 935	12	8 $\frac{1}{2}$	31 $\frac{1}{2}$	13 $\frac{3}{8}$	19 $\frac{1}{4}$	8	48 $\frac{1}{8}$	60 $\frac{1}{4}$
W 943	12	8 $\frac{1}{2}$	34 $\frac{1}{2}$	14 $\frac{1}{2}$	19 $\frac{1}{2}$	9	51 $\frac{5}{8}$	52
W 944	12	8 $\frac{1}{2}$	34 $\frac{1}{2}$	14 $\frac{1}{2}$	19 $\frac{1}{2}$	9	51 $\frac{5}{8}$	56 $\frac{1}{2}$
W 945	12	8 $\frac{1}{2}$	34 $\frac{1}{2}$	14 $\frac{1}{2}$	19 $\frac{1}{2}$	9	51 $\frac{5}{8}$	60 $\frac{3}{4}$
W 953	12	8 $\frac{1}{2}$	38	15	19 $\frac{1}{2}$	9	52 $\frac{1}{8}$	52 $\frac{1}{2}$
W 954	12	8 $\frac{1}{2}$	38	15	19 $\frac{1}{2}$	9	52 $\frac{1}{8}$	56 $\frac{3}{4}$
W 955	12	8 $\frac{1}{2}$	38	15	19 $\frac{1}{2}$	9	52 $\frac{1}{8}$	61 $\frac{1}{4}$
W 963	12	8 $\frac{1}{2}$	42	15 $\frac{1}{4}$	19 $\frac{1}{2}$	10	51 $\frac{1}{4}$	53 $\frac{3}{4}$
W 964	12	8 $\frac{1}{2}$	42	15 $\frac{1}{4}$	19 $\frac{1}{2}$	10	51 $\frac{1}{4}$	58 $\frac{3}{4}$
W 965	12	8 $\frac{1}{2}$	42	15 $\frac{1}{4}$	19 $\frac{1}{2}$	10	51 $\frac{1}{4}$	63 $\frac{3}{4}$

Dimensions are in inches

“New Monarch” Steam Boiler

Roughing in Measurements



FOR DIMENSIONS I TO R, SEE PAGE 24.

Number	A	B	C	D	E	F	G	H
W 913B	25 ³ / ₄	.....	34 ¹ / ₂	.....	50 ¹ / ₈	15 ¹ / ₄	14 ¹ / ₂	2 ¹ / ₂
W 914B	25 ³ / ₄	.....	34 ¹ / ₂	.....	54 ⁵ / ₈	15 ¹ / ₄	14 ¹ / ₂	2 ¹ / ₂
S 923	29	61 ⁷ / ₈	39 ¹ / ₂	47 ¹ / ₄	53 ³ / ₈	16	16 ¹ / ₈	2 ¹ / ₂
S 924	29	66 ³ / ₈	39 ¹ / ₂	51 ⁷ / ₈	57 ⁷ / ₈	16	16 ¹ / ₈	2 ¹ / ₂
S 933	31 ¹ / ₂	62 ¹ / ₈	43	47 ¹ / ₈	53 ⁵ / ₈	16 ³ / ₈	19 ³ / ₈	3
S 934	31 ¹ / ₂	66 ⁵ / ₈	43	51 ⁵ / ₈	58 ¹ / ₈	16 ³ / ₈	19 ³ / ₈	3
S 935	31 ¹ / ₂	77 ¹ / ₂	43	56 ¹ / ₈	62 ⁵ / ₈	16 ³ / ₈	19 ³ / ₈	3
S 943	34 ¹ / ₂	63 ¹ / ₄	46	48 ³ / ₈	54 ³ / ₄	17	22 ¹ / ₂	3
S 944	34 ¹ / ₂	67 ⁵ / ₈	46	52 ³ / ₄	59 ¹ / ₈	17	22 ¹ / ₂	3
S 945	34 ¹ / ₂	71 ³ / ₄	46	56 ⁷ / ₈	63 ¹ / ₄	17	22 ¹ / ₂	3
S 953	38	63 ³ / ₄	49 ¹ / ₂	48 ⁷ / ₈	55 ¹ / ₄	18 ¹ / ₄	25 ³ / ₄	4
S 954	38	68 ¹ / ₈	49 ¹ / ₂	53 ¹ / ₄	59 ⁵ / ₈	18 ¹ / ₄	25 ³ / ₄	4
S 955	38	72 ¹ / ₂	49 ¹ / ₂	57 ³ / ₈	64	18 ¹ / ₄	25 ³ / ₄	4
S 963	41 ¹ / ₄	66 ³ / ₄	53 ¹ / ₂	50	56 ³ / ₄	18 ⁵ / ₈	29	4
S 964	41 ¹ / ₄	71 ³ / ₄	53 ¹ / ₂	55	61 ³ / ₄	18 ⁵ / ₈	29	4
S 965	41 ¹ / ₄	76 ³ / ₄	53 ¹ / ₂	60	66 ³ / ₄	18 ⁵ / ₈	29	4

Dimensions are in inches.

Taylor-Forbes Domestic Water Heater

For "New Monarch" Boilers

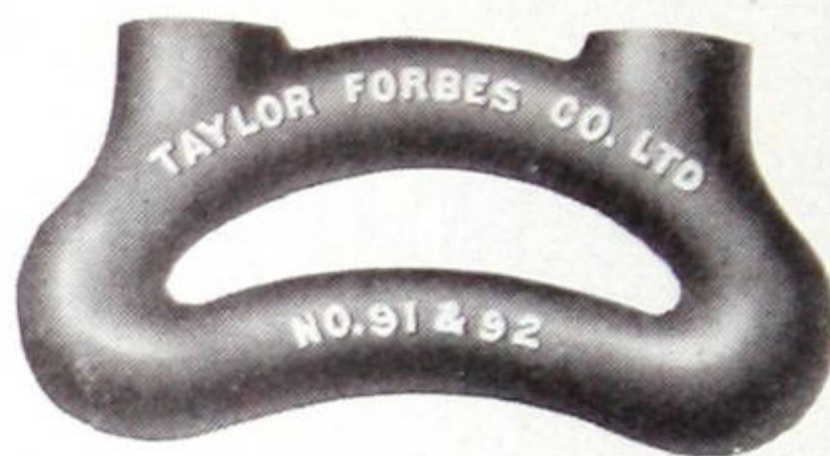


Fig. 648

DIMENSIONS AND DATA

Number of New Monarch Boiler Heater Will Fit	Size of Tappings Inches	Centre to Centre of Tappings Inches	Length Overall Inches	Width Overall Inches
913, 914, 923, 924	1	5	9	4 $\frac{3}{4}$
933, 934, 935, 943, 944, 945	1	5	12 $\frac{3}{4}$	5 $\frac{1}{4}$
953, 954, 955, 963, 964, 965	1	5	14	6

Provision has been made at the rear of the "New Monarch" Boiler, between the fire pot and first section, for the insertion of the domestic water heater so that the water for domestic purposes may be heated from the same fire that heats the building. A cover is provided for this opening in case it is not used.

Taylor-Forbes Boiler Ratings

Taylor-Forbes Hot Water and Steam Boilers are rated upon the assumption that the apparatus is properly installed, and that when in operation shall receive proper care and attention.

The ratings are based on the use of good grades of anthracite coal. For small boilers and Tank Heaters "Stove" size will be found most suitable, while in the larger sizes "Egg" coal will be found to give the greatest efficiency. Other fuels such as soft coals may be used to advantage, if due consideration is given to the attendance necessary. The New Monarch Boiler, pages 18 and 22, is particularly adapted to the burning of the highly volatile bituminous or semi-bituminous coals on account of its unusually large combustion chamber.

All steam boiler ratings are based on a standard of two pounds pressure at the boiler, and water ratings on a standard of water at a temperature of 180 degrees F. as it leaves the boiler. All hot water supply boilers are rated on a basis of a 25 degrees F. per hour raise in temperature, for eight hours, on one full charge of hard coal as fuel.

All ratings are for direct radiation, and further provide that in estimating the size of boiler required, all piping (mains and risers, flow and return) shall be figured as radiating surface in addition to the cast iron direct radiation to be used.

When indirect radiation is to be used, not less than 75 per cent. increase over direct radiation should be figured in determining size of boiler required.

The surface in mains, if not properly covered, requires more boiler capacity than the same amount of direct radiation. It is good practice to use a boiler with reserve capacity, and the surface in mains, as well as the radiators, should be figured on above basis, or due allowance made for other temperatures and pressure, as well as loss of heat in the mains in determining the required capacity.

When a pipe coil is introduced into the firepot, or a steam coil placed in a tank for the purpose of heating water for domestic use, additional capacity should be provided for in estimating size of steam or water boiler required at the rate of $1\frac{1}{4}$ square feet of direct radiation for steam, and 2 square feet of direct radiation for water for each gallon of water thus to be heated per hour.

Both on account of increased efficiency, and greater economy, we recommend that all boilers be protected by a covering of nonconducting material.

"Sovereign" Bungalow Heater

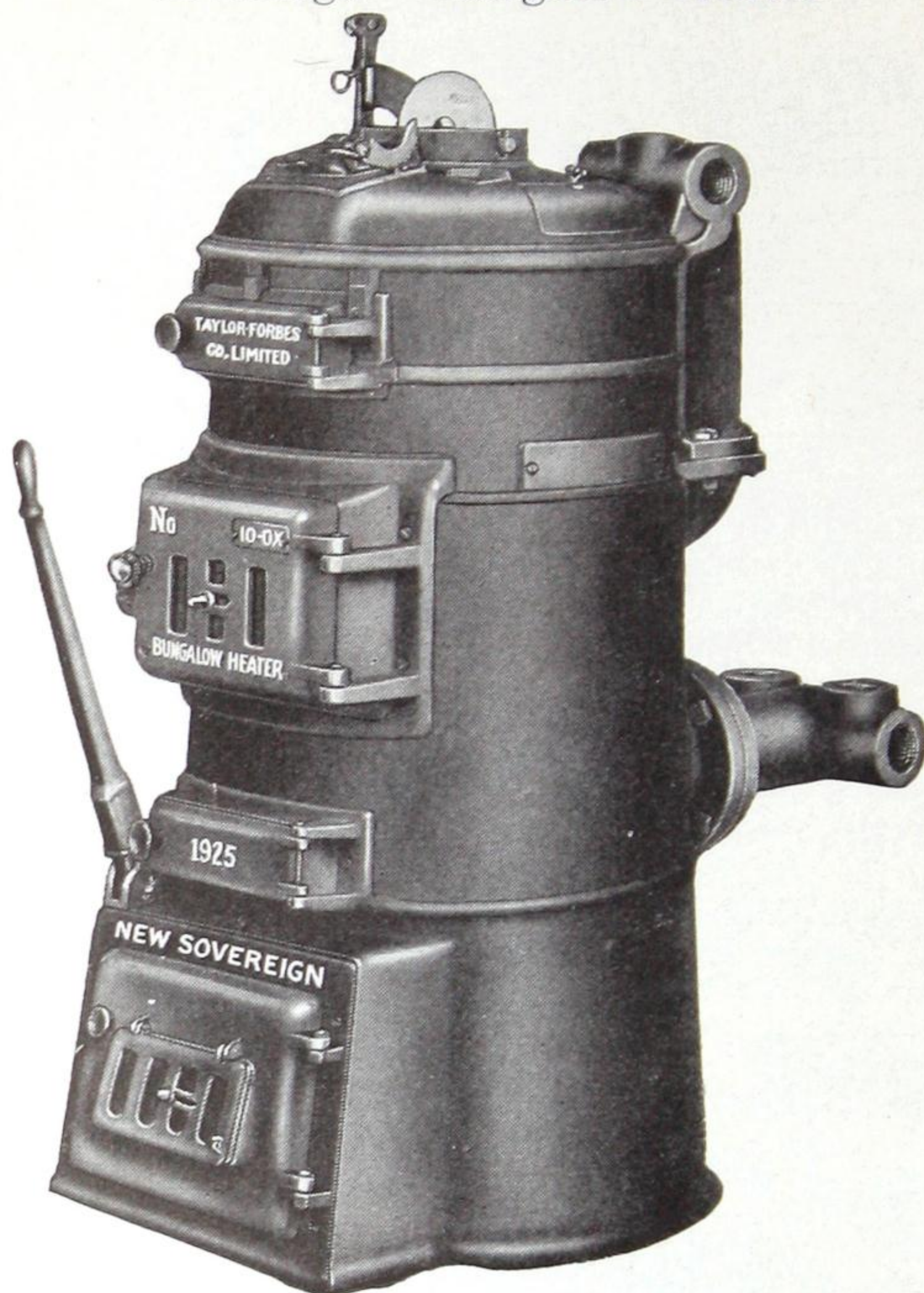


Fig. A 26
RATINGS AND DATA

Size of Boiler	Net Rating Square Feet	Gross Rating Square Feet	Inside Diameter of Fire Pot Inches	Height of Boiler to top of Header Inches	No. and Size of Tappings Inches		Size of Single Tappings Flow and Return. Ins.	Diameter of Smoke Pipe Inches
					Flow	Return		
10-0X	230	345	16½	42	3-2	4-2	3½	7

Rating conditions, page 27. Roughing in measurements, page 29.
Domestic Heaters, page 10.
Telegraph Code, pages 203-212

“Sovereign” Bungalow Heater

Roughing in Measurements

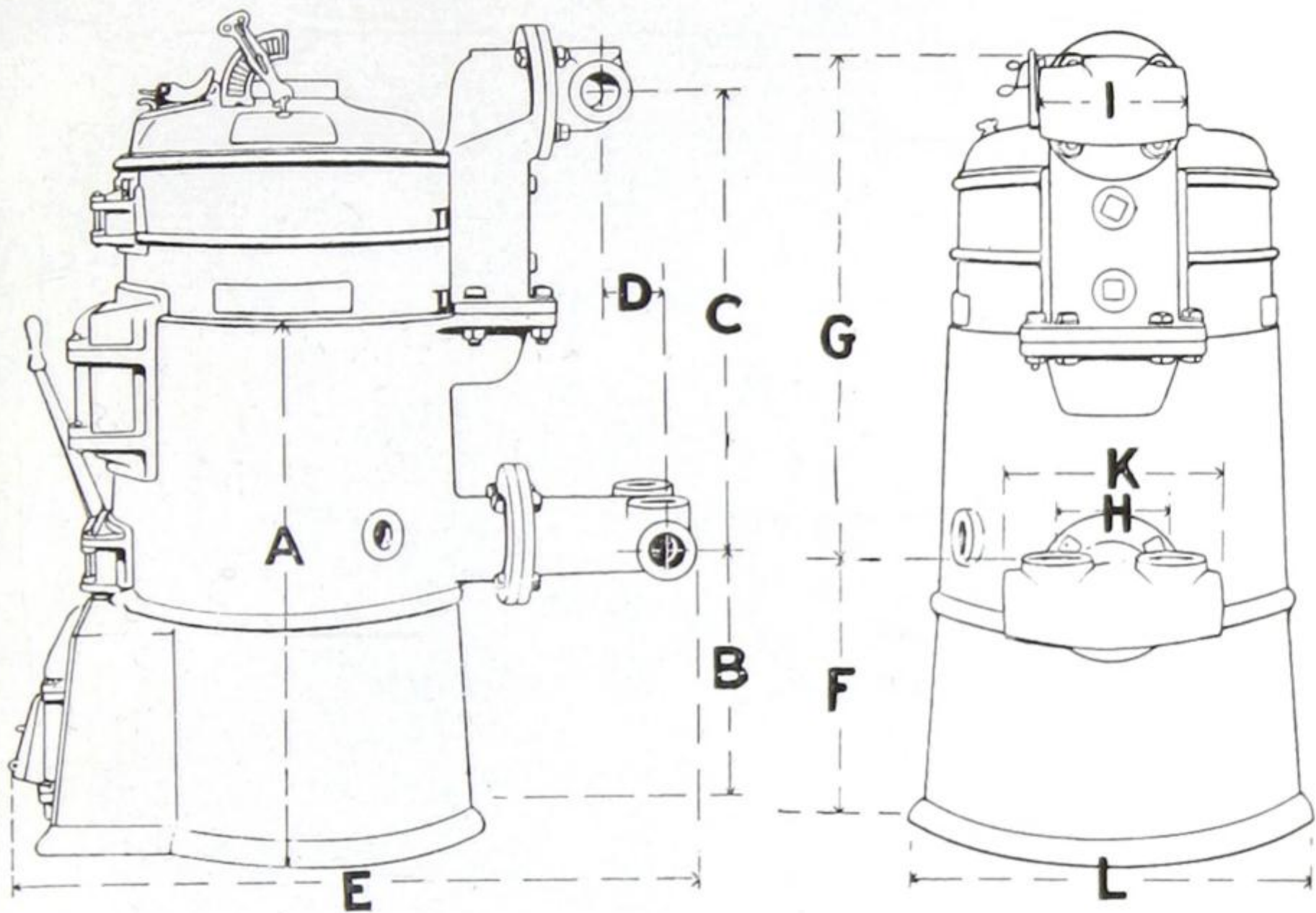


TABLE OF DISTANCES BETWEEN POINTS AS INDICATED ABOVE

All Measurements are in Inches.

Size of Boiler	LETTER OF INDICATION										
	A	B	C	D	E	F	G	H	I	K	L
10-0X	29	15½	25	6¼	37⅝	17¾	24¼	6	8	11½	24

"New Monarch" Bungalow Heater

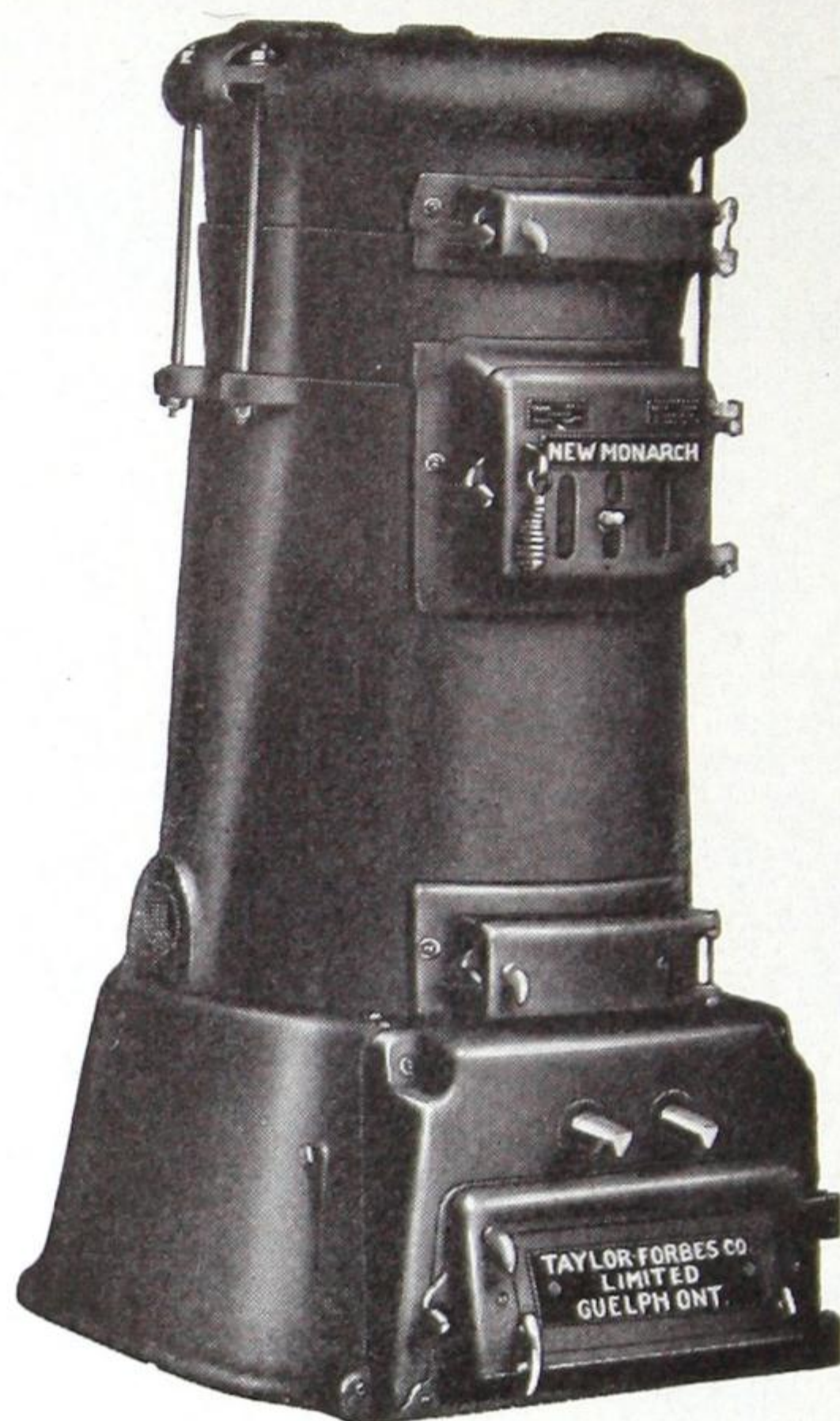


Fig. 32

RATINGS AND DATA

Size of Boiler	Net Rating Square Feet	Gross Rating Square Feet	Height to top of Boiler Inches	Inside Diameter of Fire Pot Inches	Grate Area Square Feet	No. and Size of Tappings Inches		Size of Smoke Pipe Inches
						Flow	Return	
913 B	350	525	47 $\frac{3}{4}$	17	1-8	2-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	7
914 B	400	600	52 $\frac{1}{4}$	17	1-8	2-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	7

Rating conditions, page 27. Roughing in measurements, page 24.

Domestic Heaters, page 26.

Telegraph Code, pages 203-212

“Fireside” Bungalow Heater

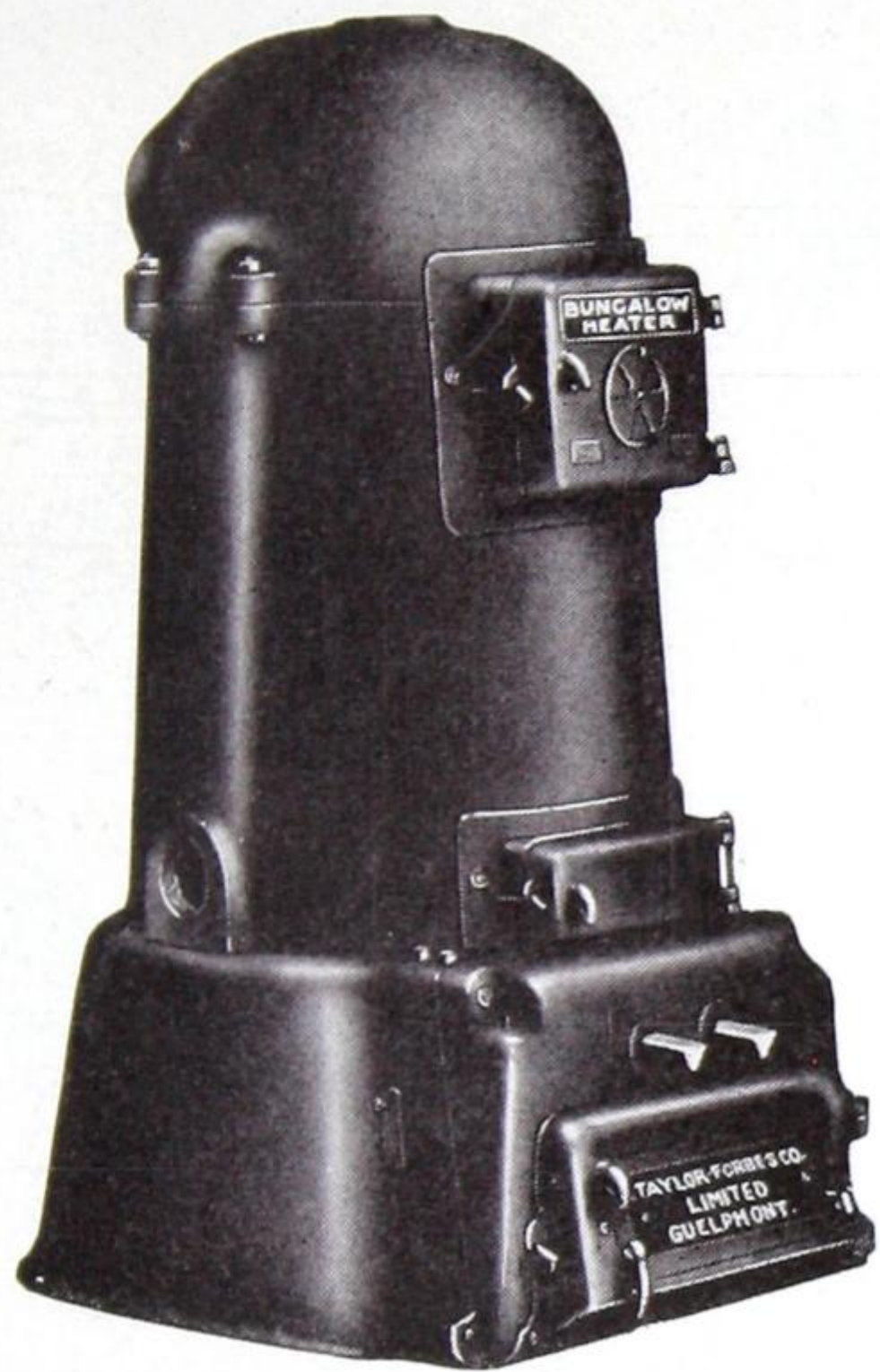


Fig. 33

RATINGS AND DATA

Size of Boiler	Net Rating Sq. Ft.	Gross Rating Sq. Ft.	Dia. of Grate Inches	Height of Boiler Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n.	
15 B	210	325	15	35 3/4	1-2 1/2	1-2 1/2	6
17 B	275	425	17	45 1/4	1-2 1/2	2-2 1/2	7
19 B	350	525	19	48 3/4	1-2 1/2	2-2 1/2	7
22 B	425	650	21 1/2	49 3/4	1-3	2-3	8

All sizes are equipped with clinker doors and openings for domestic heaters with the exception of No. 15 B.

Rating conditions, page 27. Roughing in measurements, pages 48-49 .

Telegraph Code, pages 203-212

"Taylor" Bungalow Heater



Fig. 34 B

RATINGS AND DATA

Size of Boiler	Net Rating Sq. Ft.	Gross Rating Sq. Ft.	Dia. of Grate Inches	Height of Boiler Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n	
210 C	400	600	20	46 $\frac{3}{4}$	1-3	1-3	7
211 C	400	600	20	53 $\frac{1}{4}$	1-3	1-3	7

Rating conditions, page 27. Roughing in measurements, page 45.

Telegraph Code, pages 203-212

“Taylor” Bungalow Heater

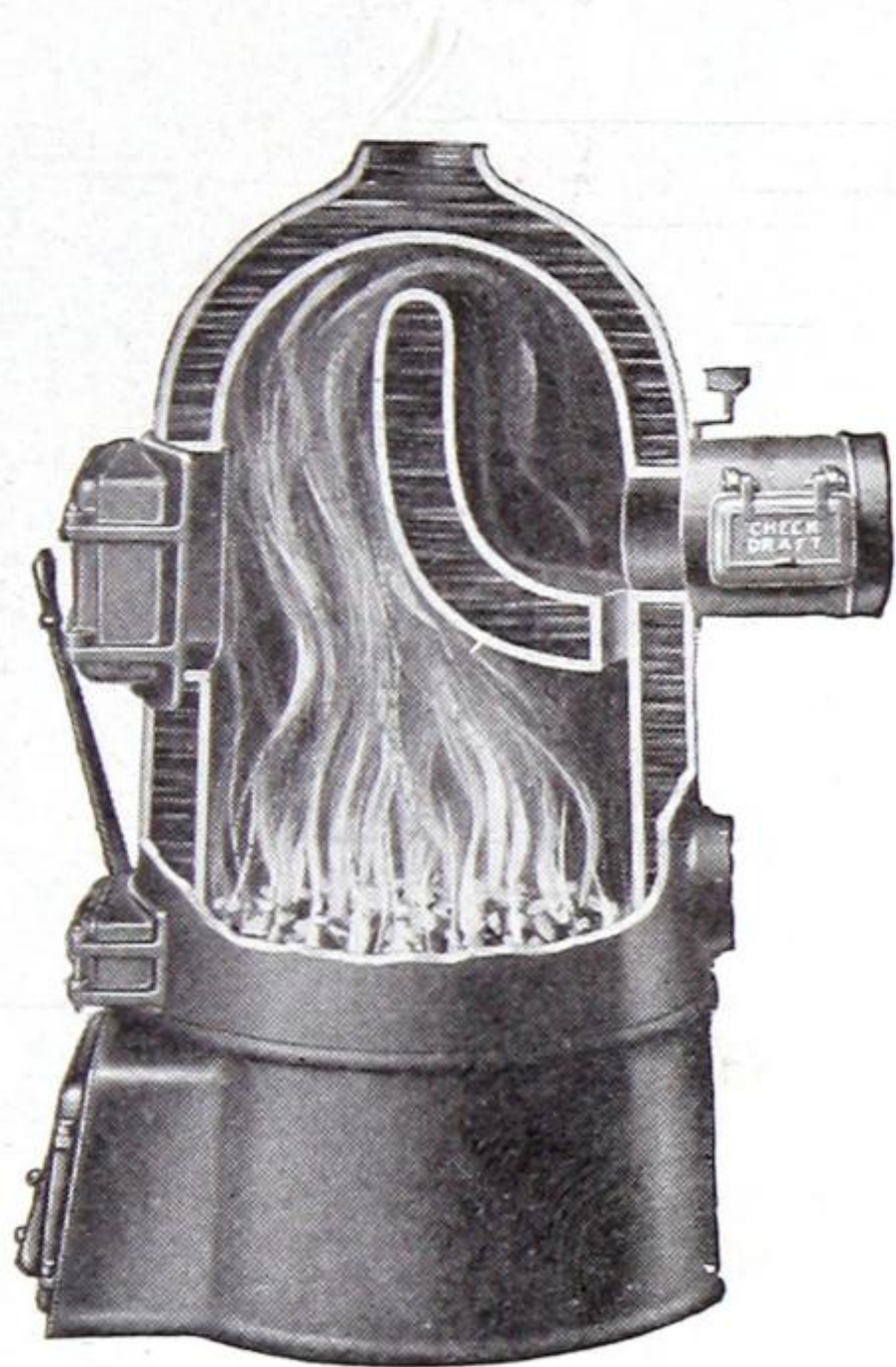


Fig. 34 C

Interior view showing fire travel and deep fuel bed.

Ratings and data, page 32.

“Canadian” Hot Water Boiler

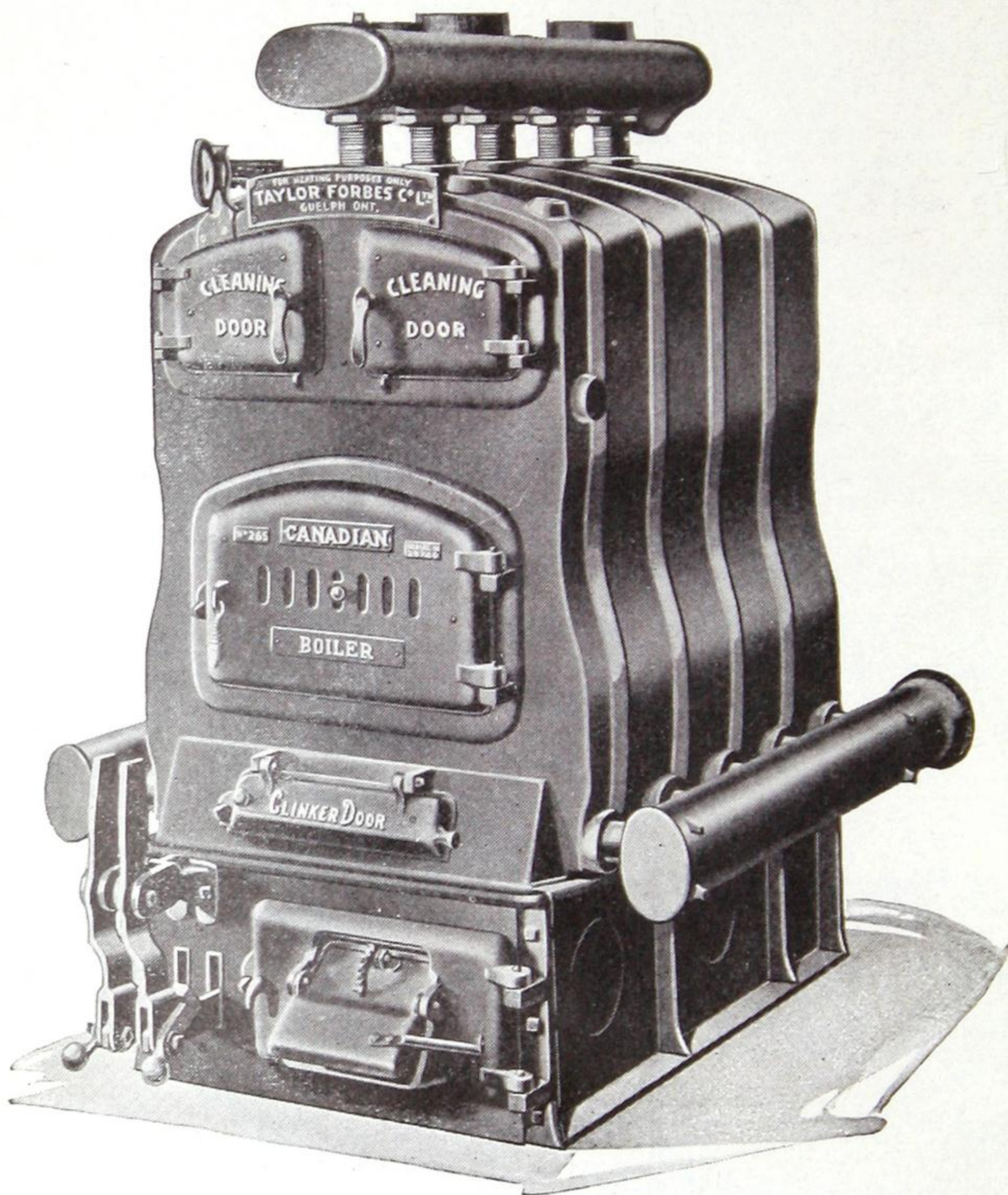


Fig. A 47

Canadian Steam Boiler, page 35.

Ratings and data, pages 38-41. Roughing in Measurements, page 42.



Telegraph Code, pages 203-212

"Canadian" Steam Boiler

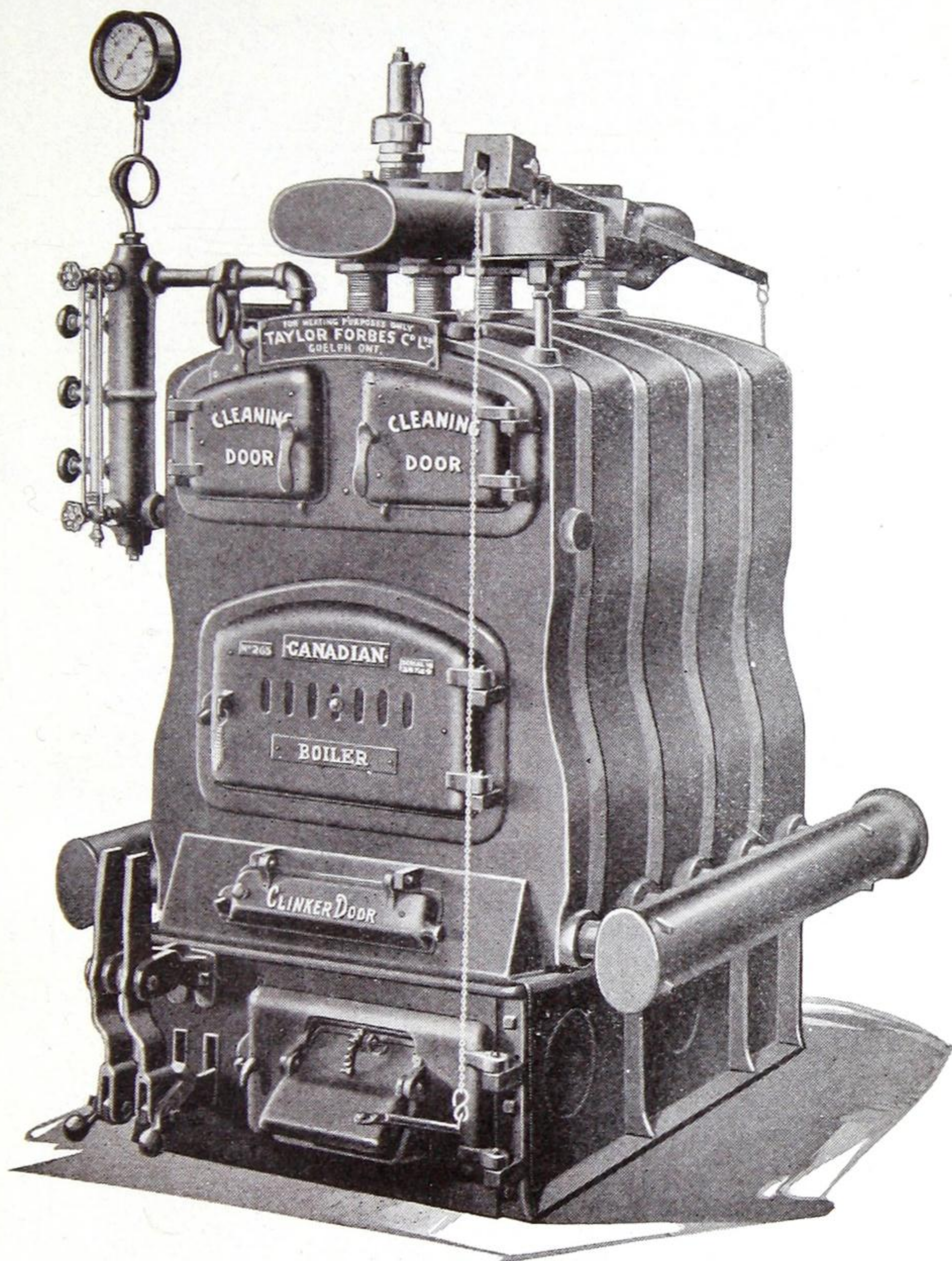


Fig. A 49

Canadian Water Boiler, page 34.

Ratings and data, pages 38-41. Roughing in measurements, page 42.

Telegraph Code, pages 203-212

“Canadian” Steam and Water Boiler

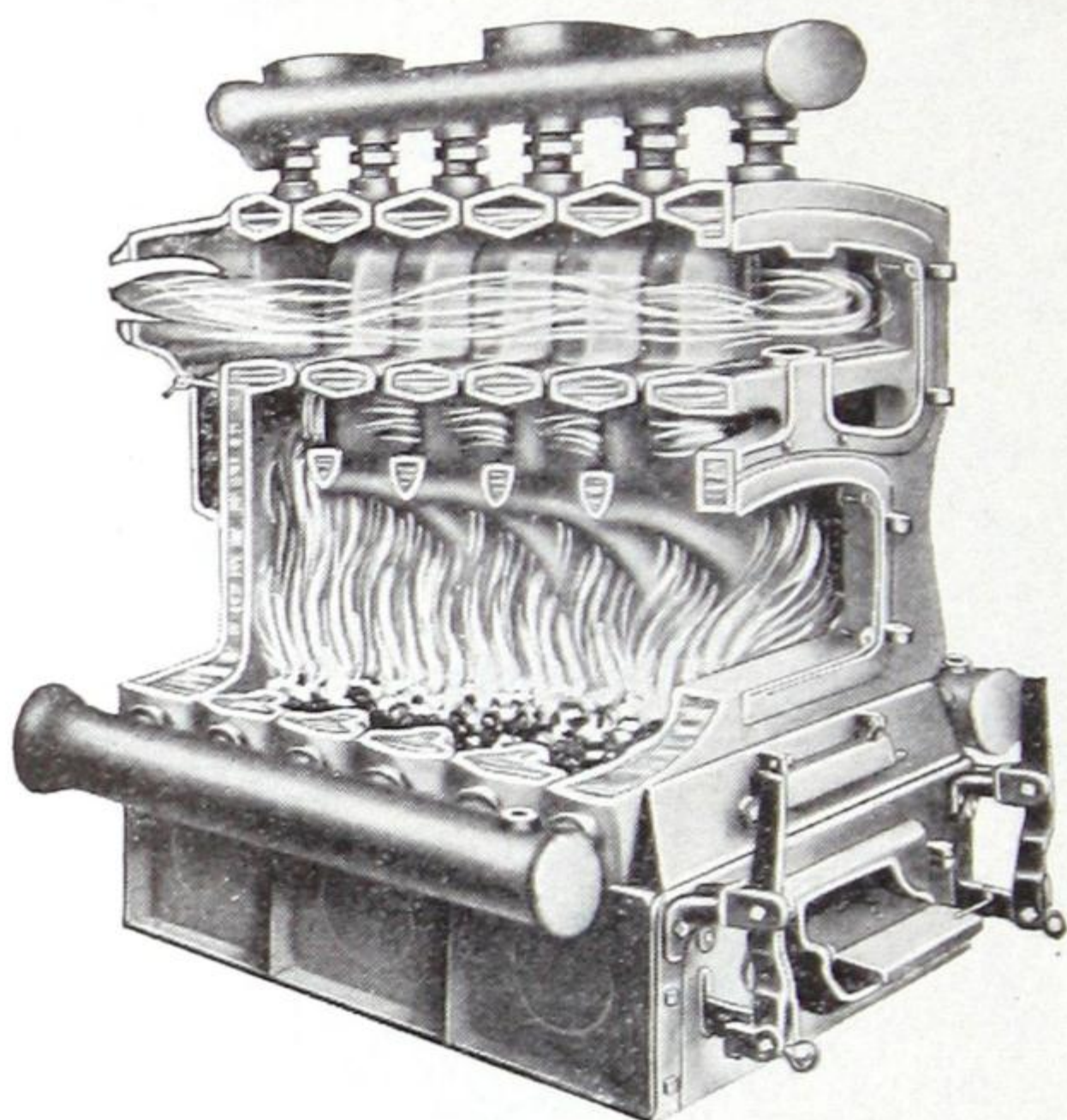


Fig. 46

Interior view of No. 406 Boiler showing fire travel and fuel bed.

Ratings and data, pages 38-41.

“Canadian” Steam and Water Boiler

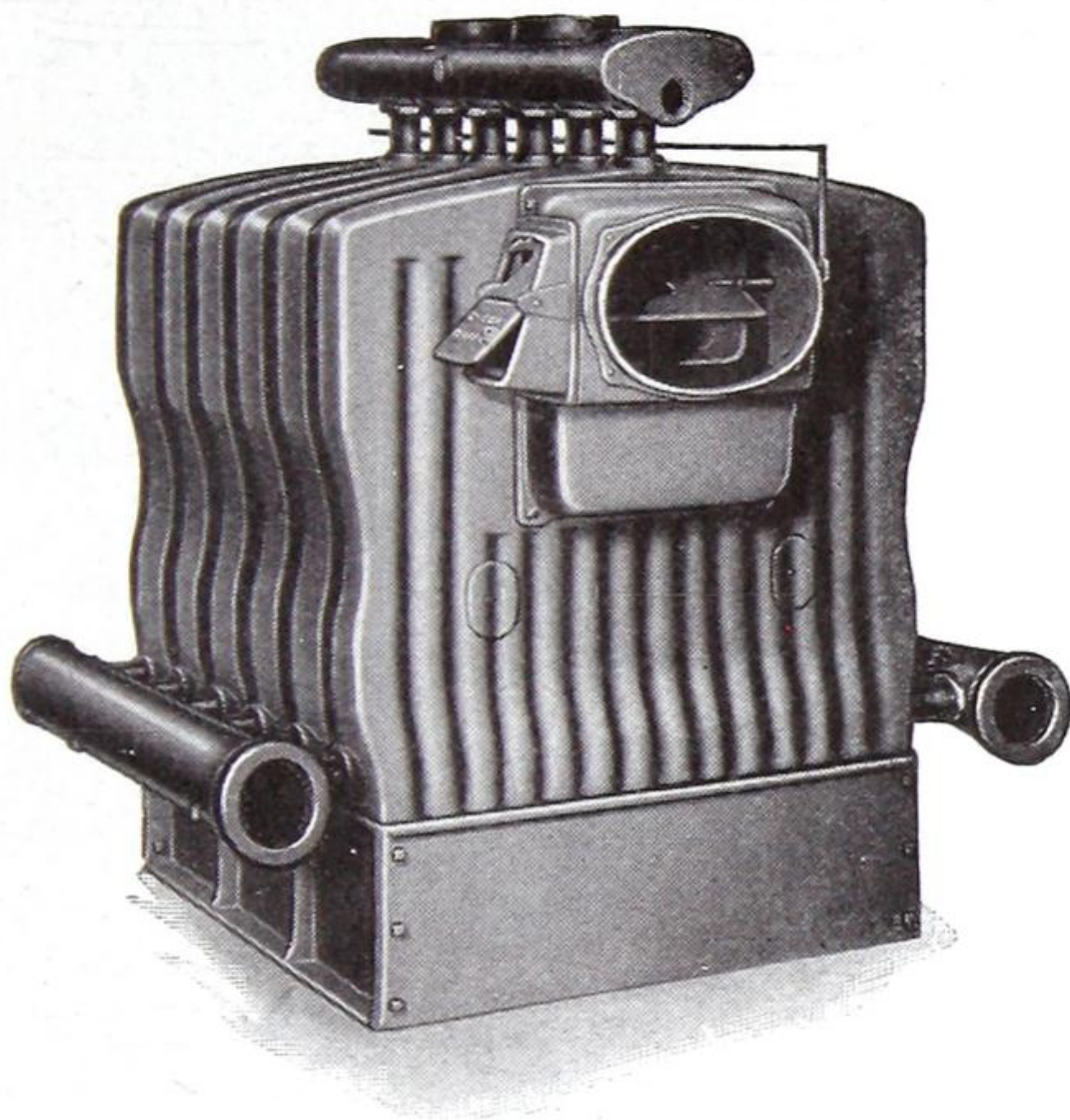


Fig. 48

Rear view of No. 406 Boiler.

Ratings and data, pages 38-41.

“Canadian” Boilers

21 SERIES—WATER

Size of Boiler	No. of Sections	Gross Rating Square Feet	Height of Boiler Including Headers Inches	Length of Boiler * Inches	Width of Boiler Including Headers Inches	Area of Grate Square Inches	Size of Fire Chamber Inches	No. and Size of Tappings, Flow and Return. Inches	Size of Smoke Pipe Inches	Recommended Size of Chimney Flue Inches
W215	5	1300	56 $\frac{1}{8}$	55	45	652	23 $\frac{5}{8}$ x31 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
W216	6	1650	56 $\frac{1}{8}$	63	45	815	23 $\frac{5}{8}$ x39 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
W217	7	2000	58	71	45	978	23 $\frac{5}{8}$ x47 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$

21 SERIES—STEAM

S215	5	800	56 $\frac{1}{8}$	55	45	652	23 $\frac{5}{8}$ x31 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
S216	6	1000	56 $\frac{1}{8}$	63	45	815	23 $\frac{5}{8}$ x39 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
S217	7	1200	58	71	45	978	23 $\frac{5}{8}$ x47 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$

* These figures are the overall dimensions including shaker arms and smoke hood.

Height of water line, 44 inches. Size of surge pipe tappings, 2-inch.

26 SERIES—WATER

W265	5	1840	64 $\frac{1}{2}$	55	51	800	29 $\frac{3}{8}$ x31 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
W266	6	2290	64 $\frac{1}{2}$	63	51	1000	29 $\frac{3}{8}$ x39 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
W267	7	2755	64 $\frac{1}{2}$	71	51	1200	29 $\frac{3}{8}$ x47 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x17
W268	8	3220	64 $\frac{1}{2}$	79	51	1400	29 $\frac{3}{8}$ x55 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x17

26 SERIES—STEAM

S265	5	1150	64 $\frac{1}{2}$	55	51	800	29 $\frac{3}{8}$ x31 $\frac{3}{8}$	2-3	10	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
S266	6	1375	64 $\frac{1}{2}$	63	51	1000	29 $\frac{3}{8}$ x39 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x12 $\frac{1}{2}$
S267	7	1650	64 $\frac{1}{2}$	71	51	1200	29 $\frac{3}{8}$ x47 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x17
S268	8	1925	64 $\frac{1}{2}$	79	51	1400	29 $\frac{3}{8}$ x55 $\frac{3}{8}$	2-4	12	12 $\frac{1}{2}$ x17

* These figures are the overall dimensions including shaker arms and smoke hood.

Height of water line, 51 inches. Size of surge pipe tappings, 2-inch.

Rating conditions, page 27.

Telegraph Code, pages 203-212

"Canadian" Boilers

32 SERIES—WATER

Size of Boiler	No. of Sections	Gross Rating Square Feet	Height of Boiler Including Headers Inches	Length of Boiler * Inches	Width of Boiler Including Headers Inches	Area of Grate Square Inches	Size of Fire Chamber Inches	No. and Size of Tappings, Flow and Return. Inches	Size of Smoke Pipe Inches	Recommended Size of Chimney Flue Inches
W325	5	2325	67	55	59¼	992	36x31⅜	2-4	14	12½x17
W326	6	2900	67	63	59¼	1240	36x39⅜	2-5	14	12½x17
W327	7	3475	67	71	59¼	1488	36x47⅜	2-5	14	12½x17
W328	8	4050	67	79	59¼	1736	36x55⅜	2-5	14	17 x17
W329	9	4625	67	87	59¼	1984	36x63⅜	2-5	14	17 x17
W3210	10	5300	67	95	59¼	2232	36x71⅜	2-5	14	17 x17

32 SERIES—STEAM

S325	5	1400	67	55	59¼	992	36x31⅜	2-4	14	12½x17
S326	6	1800	67	63	59¼	1240	36x39⅜	2-5	14	12½x17
S327	7	2150	67	71	59¼	1488	36x47⅜	2-5	14	12½x17
S328	8	2450	67	79	59¼	1736	36x55⅜	2-5	14	17 x17
S329	9	2900	67	87	59¼	1984	36x63⅜	2-5	14	17 x17
S3210	10	3300	67	95	59¼	2232	36x71⅜	2-5	14	17 x17

* These figures are the overall dimensions including shaker arms and smoke hood.

Height of water line, 53 inches. Size of surge pipe tapplings, 2½-inch.

Rating conditions, page 27.

Telegraph Code, pages 203-212

“Canadian” Boilers

40 SERIES—WATER

Size of Boiler	No. of Sections	Gross Rating Square Feet	Height of Boiler Including Headers Inches	Length of Boiler * Inches	Width of Boiler Including Headers Inches	Area of Grate Square Inches	Size of Fire Chamber Inches	No. and Size of Tappings, Flow and Return. Inches	Size of Smoke Pipe Inches	Recommended Size of Chimney Flue Inches
W405	5	3150	69¼	55	66½	1248	43¾x31⅜	2-4	14	12½x17
W406	6	4000	69¼	63	66½	1560	43¾x39⅜	2-5	14	12½x17
W407	7	4850	69¼	71	66½	1872	43¾x47⅜	2-5	14	17 x17
W408	8	5700	69¼	79	66½	2184	43¾x55⅜	2-5	14	17 x17
W409	9	6550	69¼	87	66½	2496	43¾x63⅜	2-5	16	17 x21
W4010	10	7400	69¼	95	66½	2808	43¾x71⅜	2-5	16	17 x21
W4011	11	8250	69¼	103	66½	3120	43¾x79⅜	2-5	16	17 x21

40 SERIES—STEAM

S405	5	1950	69¼	55	66½	1248	43¾x31⅜	2-4	14	12½x17
S406	6	2550	69¼	63	66½	1560	43¾x39⅜	2-5	14	12½x17
S407	7	2950	69¼	71	66½	1872	43¾x47⅜	2-5	14	17 x17
S408	8	3600	69¼	79	66½	2184	43¾x55⅜	2-5	14	17 x17
S409	9	4050	69¼	87	66½	2496	43¾x63⅜	2-5	16	17 x21
S4010	10	4500	69¼	95	66½	2808	43¾x71⅜	2-5	16	17 x21
S4011	11	4950	69¼	103	66½	3120	43¾x79⅜	2-5	16	17 x21

* These figures are the overall dimensions including shaker arms and smoke hood.

Height of water line, 54 inches. Size of surge pipe tappings, 2½-inch
Rating conditions, page 27.

Telegraph Code, pages 203-212

“Canadian” Boilers

46 SERIES—WATER

Size of Boiler	No. of Sections	Gross Rating Square Feet	Height of Boiler Including Headers Inches	Length of Boiler * Inches	Width of Boiler Including Headers Inches	Area of Grate Square Inches	Size of Fire Chamber Inches	No. and Size of Tappings, Flow and Return. Inches	Size of Smoke Pipe Inches	Recommended Size of Chimney Flue Inches
W466	6	6200	82	68	79	1840	53x40	2-6	16	17x17
W467	7	7450	82	76	79	2208	53x48	2-6	18	17x21
W468	8	8700	82	84	79	2500	53x56	2-6	18	17x21
W469	9	9950	82	92	79	2944	53x64	2-6	18	21x21
W4610	10	11200	82	100	79	3312	53x72	2-6	20	21x21
W4611	11	12450	82	108	79	3680	53x80	2-6	20	21x25½
W4612	12	13700	82	116	79	4048	53x88	2-6	20	21x25½
W4613	13	15000	82	124	79	4416	53x96	2-6	20	21x25½

46 SERIES—STEAM

S466	6	3750	82	68	79	1840	53x40	2-6	16	17x17
S467	7	4500	82	76	79	2208	53x48	2-6	18	17x21
S468	8	5250	82	84	79	2500	53x56	2-6	18	17x21
S469	9	6000	82	92	79	2944	53x64	2-6	18	21x21
S4610	10	6750	82	100	79	3312	53x72	2-6	20	21x21
S4611	11	7500	82	108	79	3680	53x80	2-6	20	21x25½
S4612	12	8250	82	116	79	4048	53x88	2-6	20	21x25½
S4613	13	8800	82	124	79	4416	53x96	2-6	20	21x25½

* These figures are the overall dimensions including shaker arms and smoke hood.

Height of water line, 63 inches. Size of surge pipe tappings, 3-inch.

Rating conditions, page 27.

Telegraph Code, pages 203-212

“Taylor” Hot Water Supply Boiler



Fig. A 64

RATINGS AND DATA

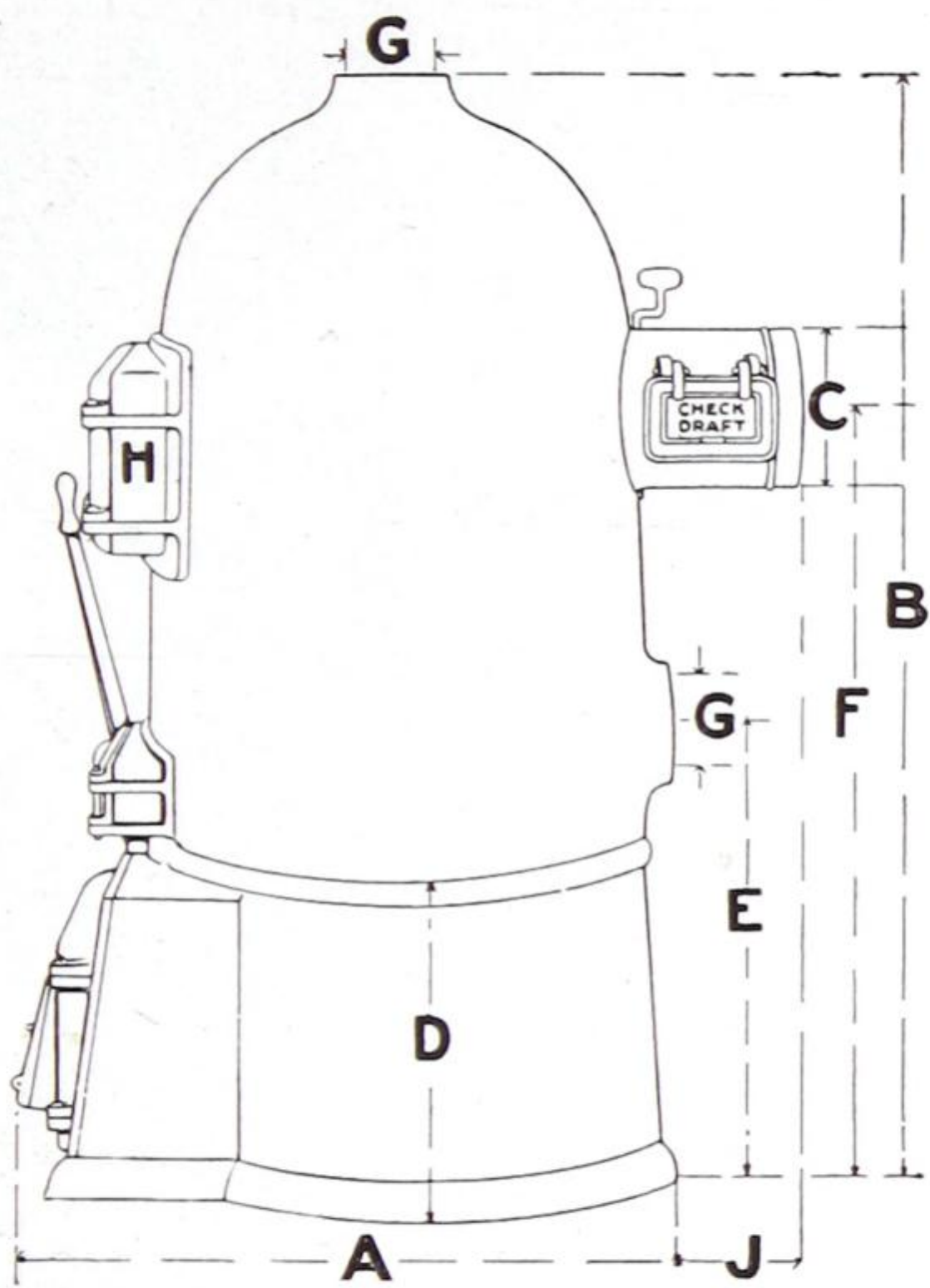
Size of Boiler	Tank Capacity Gallons	Diameter of Grate Inches	Height of Boiler Inches	No. and Size of Tappings Inches		Diameter of Smoke Pipe Inches
				Flow	Ret'n	
210 C	900	20	46 $\frac{3}{4}$	1-3	1-3	7

Rating conditions, page 27. Roughing in measurements, page 45.

Telegraph Code, pages 203-212

“Taylor” Hot Water Supply Boiler

Roughing in Measurements



DIMENSION TABLE

Size of Boiler	A	B	C	D	E	F	G	H	J
210C	31 1/4	46 3/4	7	14	17 1/2	31 5/8	3	8x10	4

All dimensions are in inches.

“Fireside” Hot Water Supply Boiler

Dome Top



Fig. 61

Nos. 1110, 1112, 1115

RATINGS AND DATA

Size of Boiler	Tank Capacity Gallons	Diameter of Grate Inches	Height of Boiler Inches	Width of Base Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n.	
1110	150	10	30½	18½	1-2	1-2	5
1112	300	12	33½	20¾	1-2	1-2	6
1115	500	15	35¾	24¾	1-2½	1-2½	6

Rating conditions, page 27. Roughing in measurements, page 48.

Telegraph Code, pages 203-212

“Fireside” Hot Water Supply Boiler

Dome Top



Fig. 62

Nos. 1117, 1119, 1122

RATINGS AND DATA

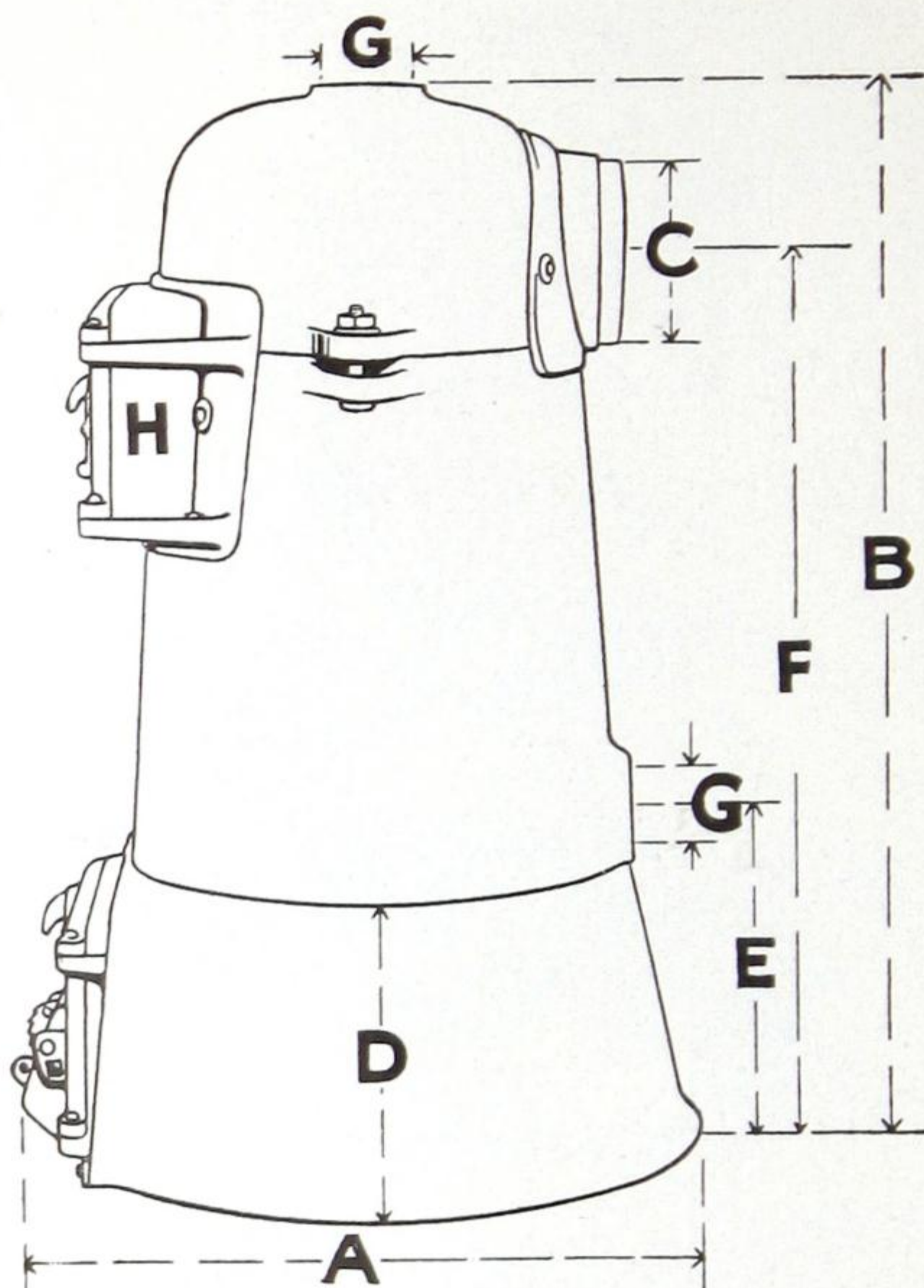
Size of Boiler	Tank Capacity Gallons	Diameter of Grate Inches	Height of Boiler Inches	Width of Base Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n.	
1117	650	17	45 1/4	25 3/4	1-2 1/2	2-2 1/2	7
1119	800	19	48 3/4	29	1-2 1/2	2-2 1/2	7
1122	1000	21 1/2	49 3/4	31 1/2	1-3	2-3	8

Rating conditions, page 27. Roughing in measurements, page 48.

Telegraph Code, pages 203-212

“Fireside” Hot Water Supply Boiler

Roughing in Measurements



Nos. 1110, 1112, 1115

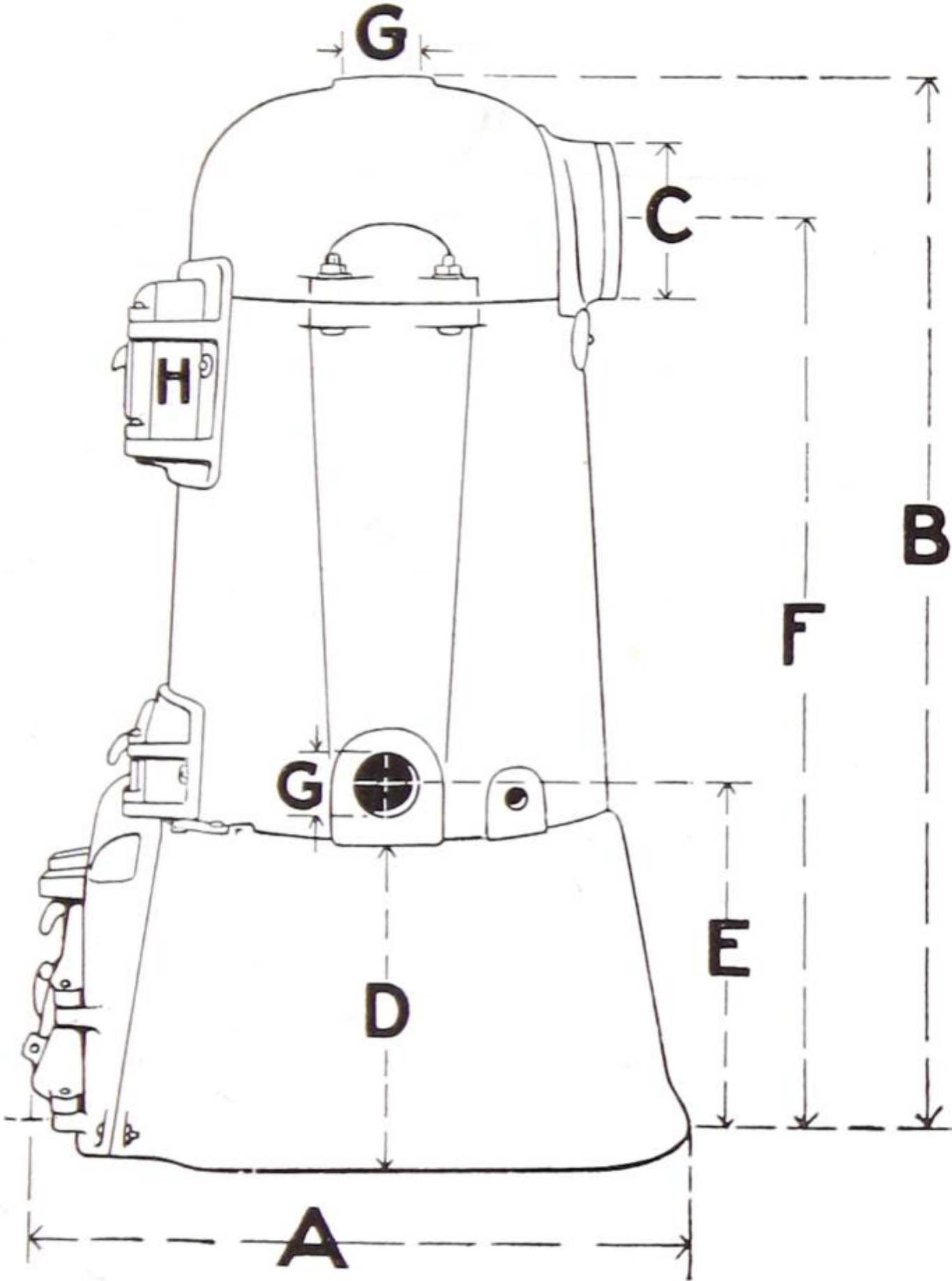
DIMENSION TABLE

No. of Boiler	A	B	C	D	E	F	G	H
1110	18½	30½	5	8	9¾	25½	2	6x8
1112	20¾	33½	6	8½	10¼	28	2	7x9
1115 or 15B	24¾	35¾	6	9	11¼	30	2½	8x10

All dimensions are in inches.

“Fireside” Hot Water Supply Boiler

Roughing in Measurements



Nos. 1117, 1119, 1122

DIMENSION TABLE

No. of Boiler	A	B	C	D	E	F	G	H
1117 or 17B	25¾	45¼	7	13	15¼	38¾	2½	7½x 9½
1119 or 19B	29	48¾	7	13½	16	42	2½	8½x10½
1122 or 22B	31½	49¾	8	14	16½	42¾	3	8½x12

All dimensions are in inches.

“Fireside” Hot Water Supply Boiler

Flat Top



Fig. 37

RATINGS AND DATA

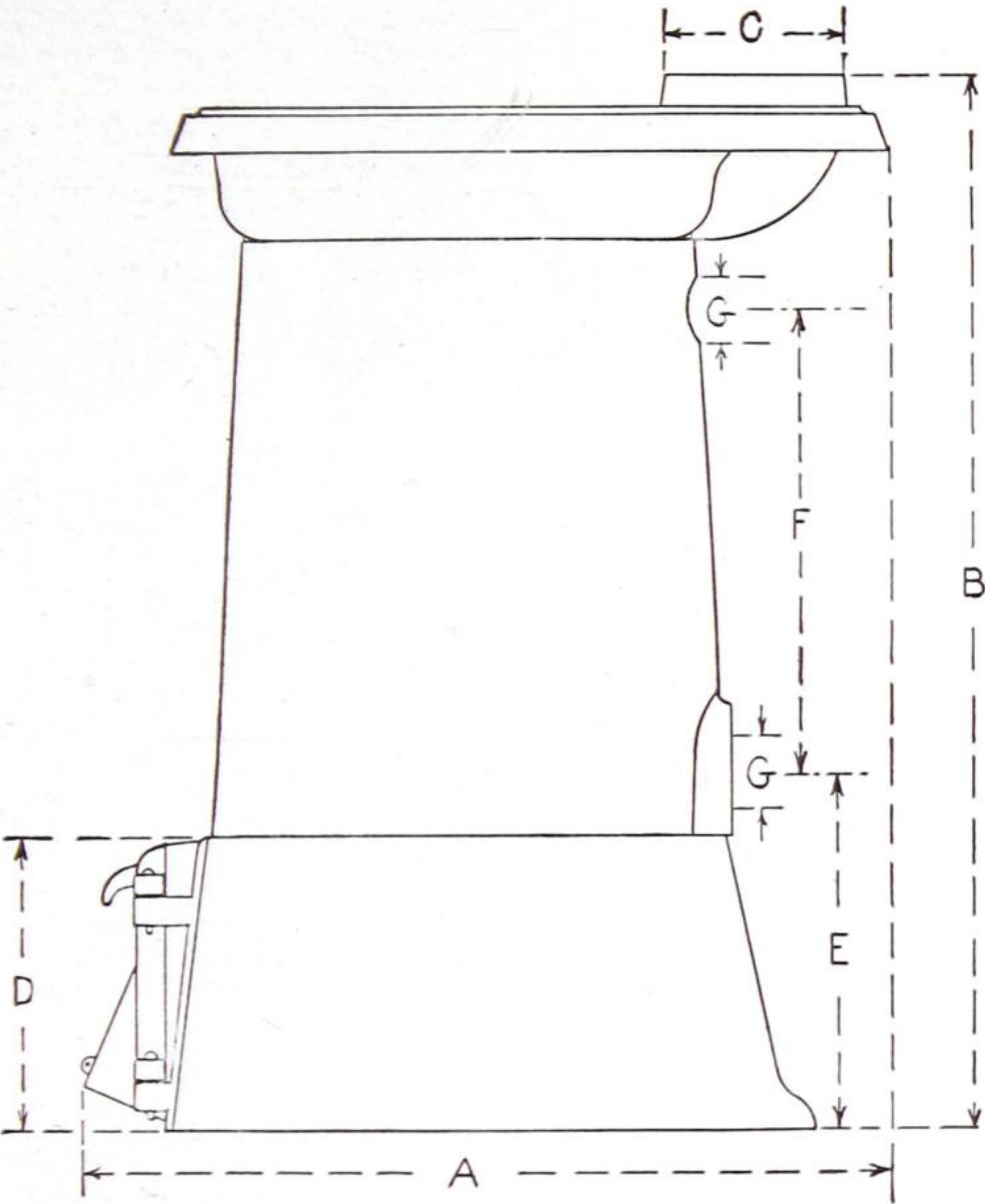
Size of Boiler	Tank Capacity Gallons	Diameter of Grate Inches	Height of Boiler Inches	Extreme Width of Boiler Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n.	
1010	100	10	28	22	1-2	1-2	5
1012	200	12	30	24	1-2	1-2	6
1015	400	15	32	25 ³ / ₄	1-2 ¹ / ₂	1-2 ¹ / ₂	6

Rating conditions, page 27. Roughing in measurements, page 51.

Telegraph Code, pages 203-212

“Fireside” Hot Water Supply Boiler

Roughing in Measurements



DIMENSION TABLE

No. of Boiler	A	B	C	D	E	F	G
1010	22	28	5	8	9¾	11	2
1012	24	30	6	8½	10¼	12¾	2
1015	25¾	32	6	9	11¼	13¼	2½

All dimensions are in inches.

“Improved Giant” Hot Water Supply Boiler

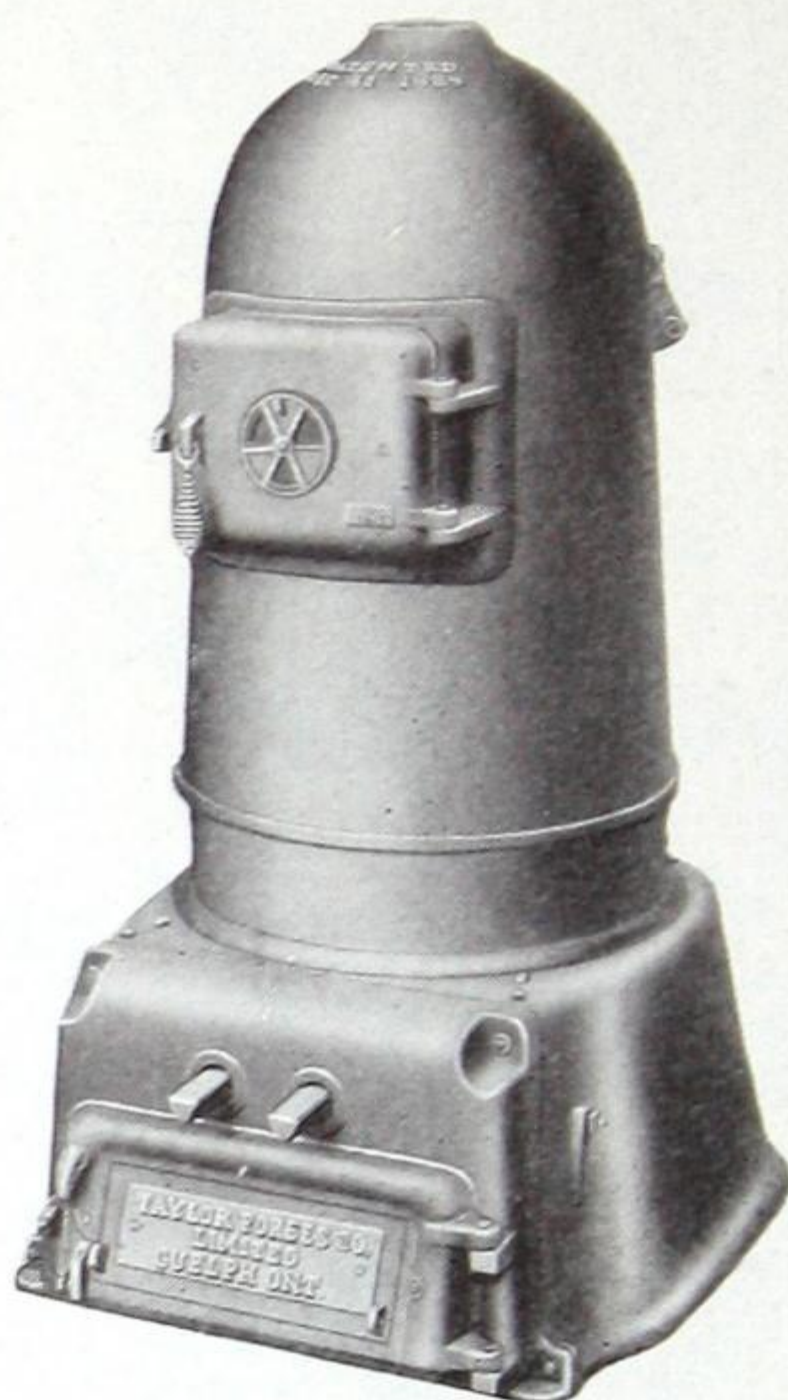


Fig. 16

RATINGS AND DATA

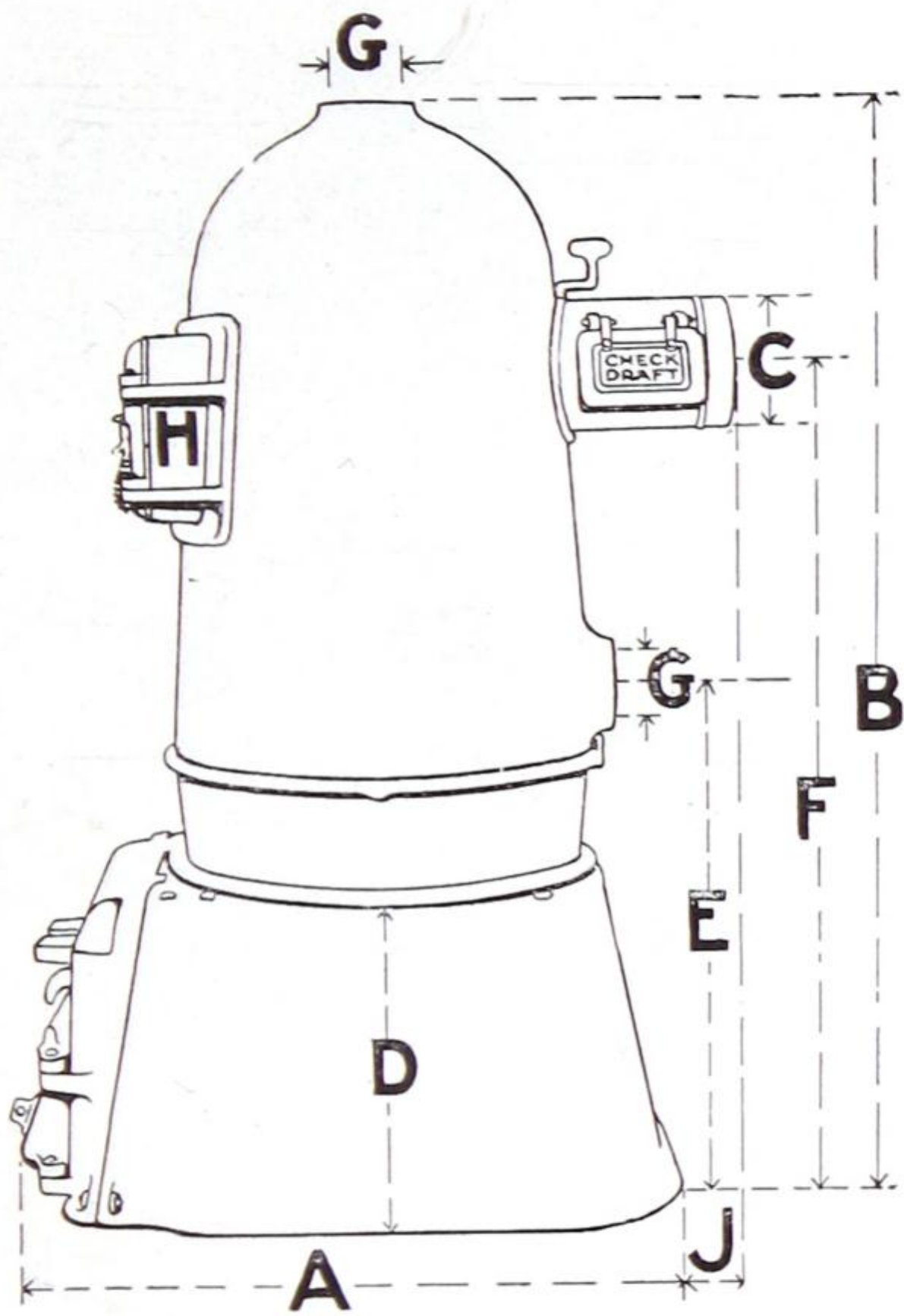
Size of Boiler	Tank Capacity Gallons	Diameter of Grate Inches	Height of Boiler Inches	Width of Base Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n	
120 T	400	9½	40	18½	1-2	1-2	6
160 T	600	17	47	26	1-2½	1-2½	6

Rating conditions, page 27. Roughing in measurements, page 53.

Telegraph Code, pages 203-212

“Improved Giant” Hot Water Supply Boiler

Roughing in Measurements



DIMENSION TABLE

No. of Boiler	A	B	C	D	E	F	G	H	J
120T	20	40	6	8¼	16	28¼	2	7⅜x8¼	5½
160T	28¾	47	6	12¾	20¾	37¼	2½	8x10⅛	1½

All dimensions are in inches.

“Adanac” Tank and Laundry Heater



Fig. 92

RATINGS AND DATA

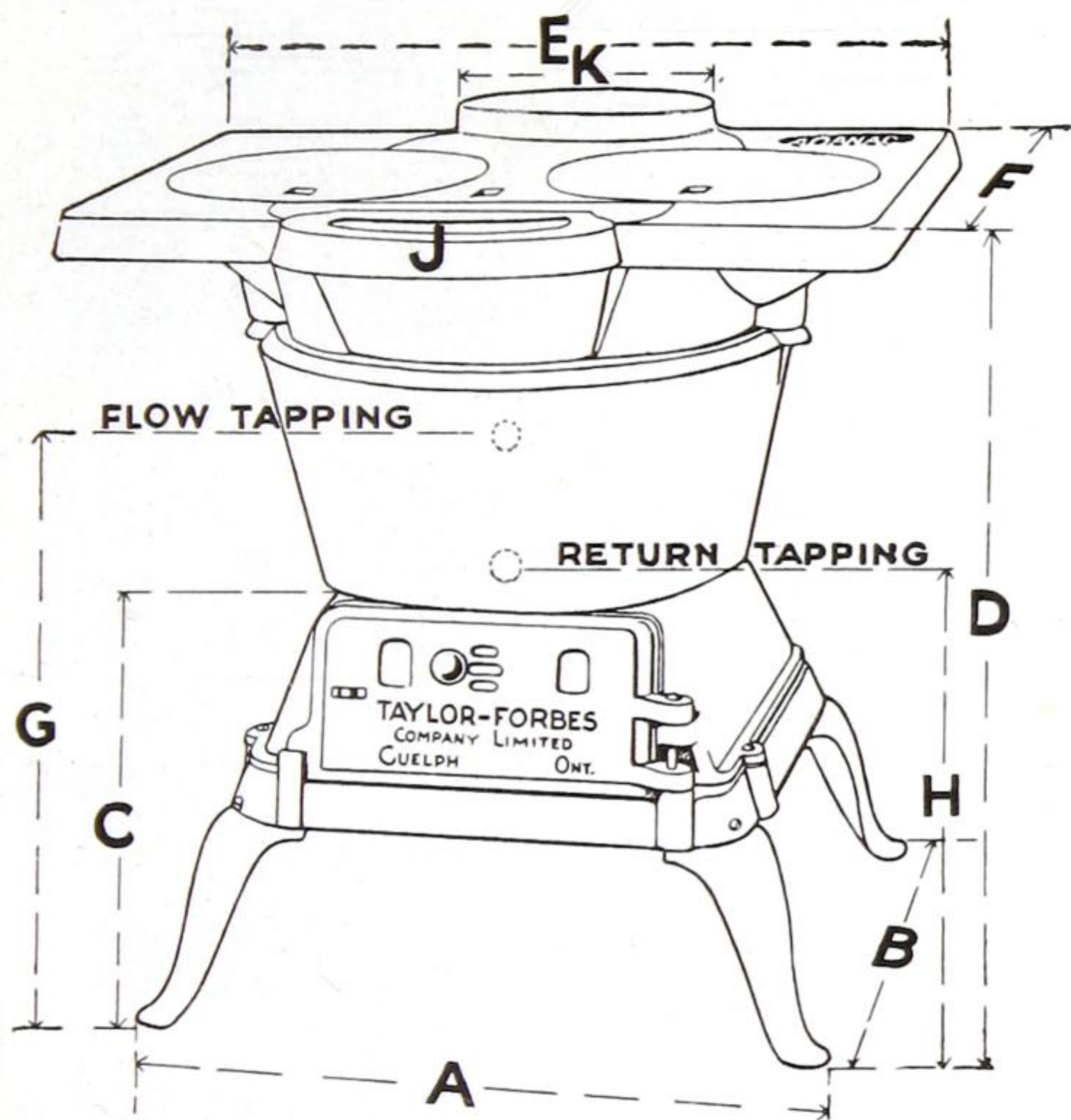
Size of Heater	Tank Capacity Gallons	Diameter of Grate Inches	Height of Heater Overall Inches	Extreme Width of Heater Inches	No. and Size of Tappings Inches		Dia. of Smoke Pipe Inches
					Flow	Ret'n	
9	40	8	23 $\frac{1}{4}$	21 $\frac{1}{2}$	1-1	1-1	6

Rating conditions, page 27. Roughing in measurements, page 55.

Telegraph Code, pages 203-212

“Adanac” Tank and Laundry Heater

Roughing in Measurements

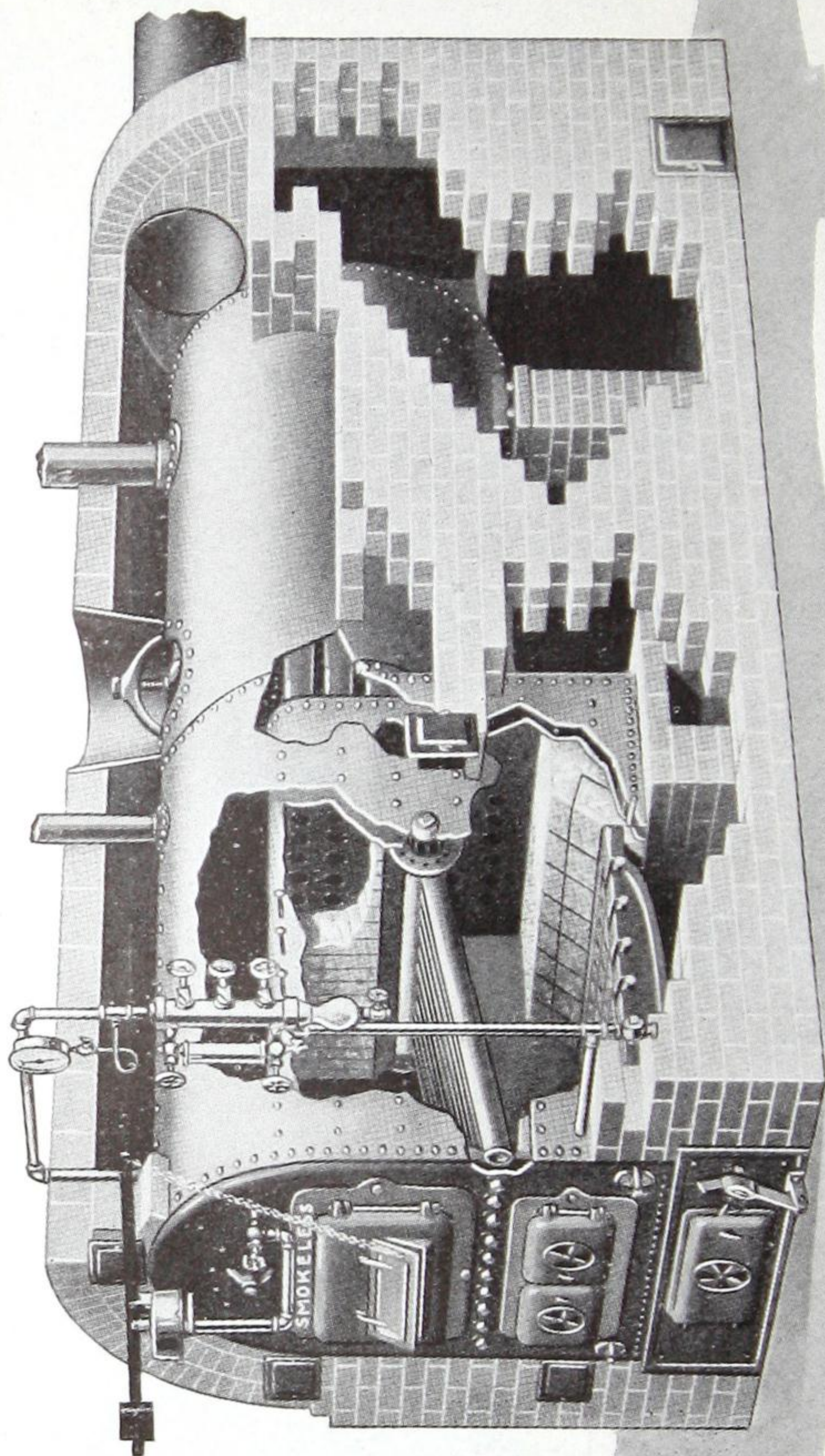


DIMENSION TABLE

No. of Heater	A	B	C	D	E	F	G	H	J	K
9	16	15½	11	22¼	21½	15	16¼	12½	3x7½	3⅝x7¼

All dimensions are in inches.

Taylor-Forbes Fire Box Heating Boilers



See special catalogue pertaining to all fire box heating boilers,

Sovereign Radiators

“Sovereign” Right and Left Threaded Radiator Nipples

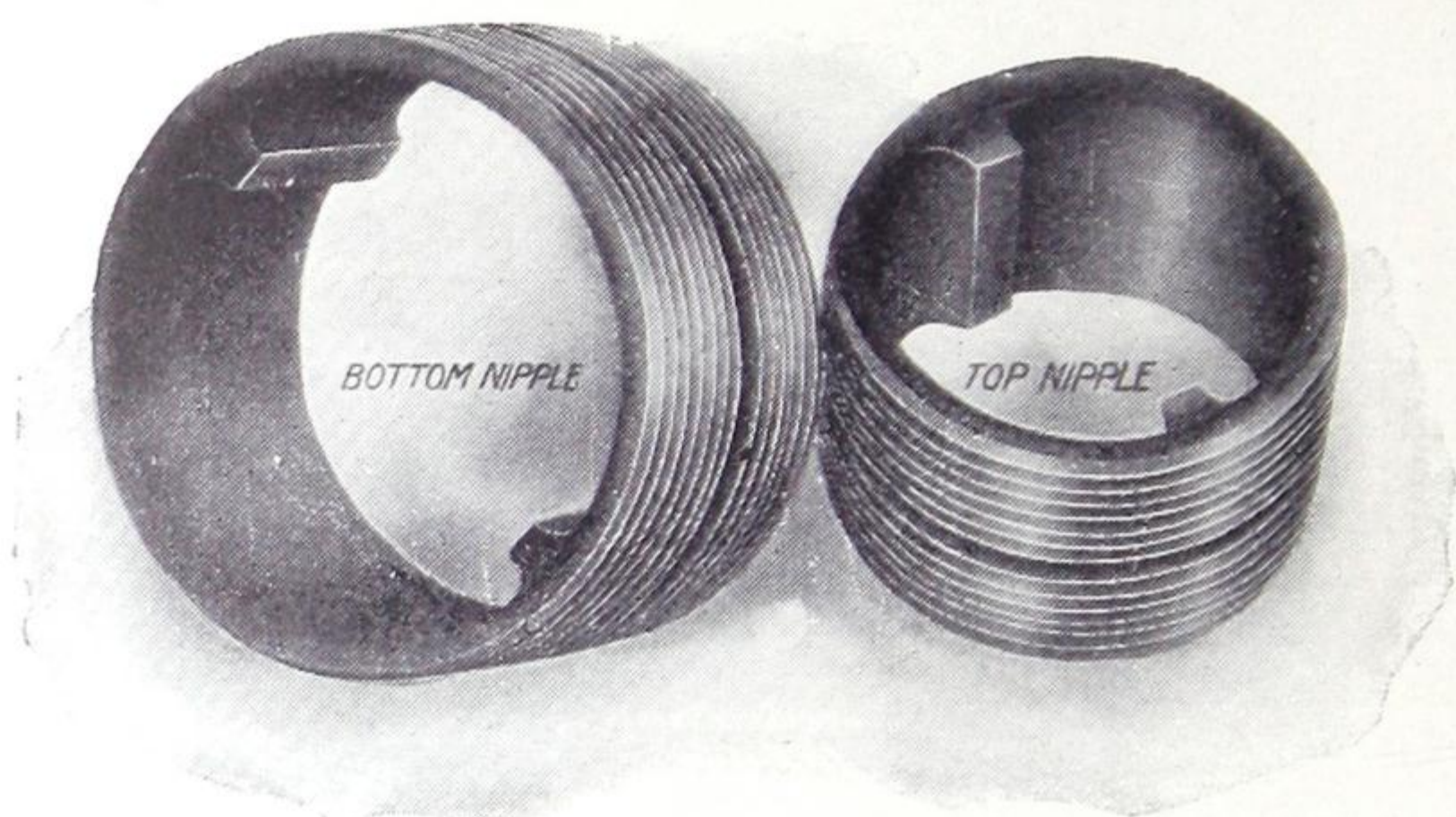


Illustration showing comparative sizes of top and bottom circulation.

We claim our screwed malleable nipples give increased surface, larger connections and reduced friction. The sections do not have to be held together with unsightly bolts.

“Sovereign” in name and quality.

Note—Ornamental radiators are made to order only and therefore cannot be returned.

“Colonial” Radiators

Plain

Round Top

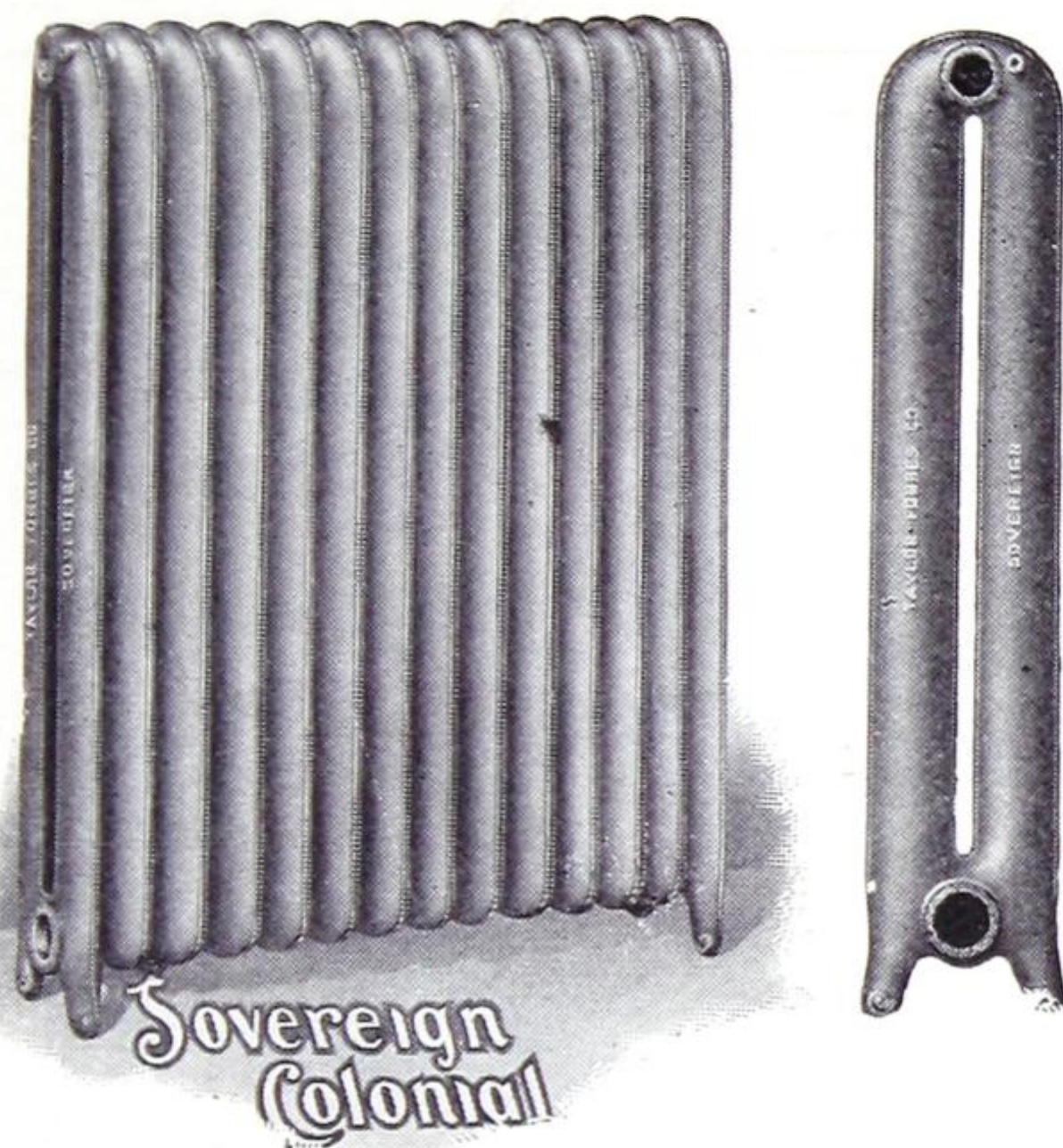


Fig. 9

Made for water only

Heating surface, page 61.

Measurements, pages 75-77.

Directions for ordering, pages 184-185

Telegraph Code, pages 203-212

Colonial Radiators can be furnished without legs or with pedestal legs. See pages 86 and 88.

“Colonial” Radiators

Plain

Square Top

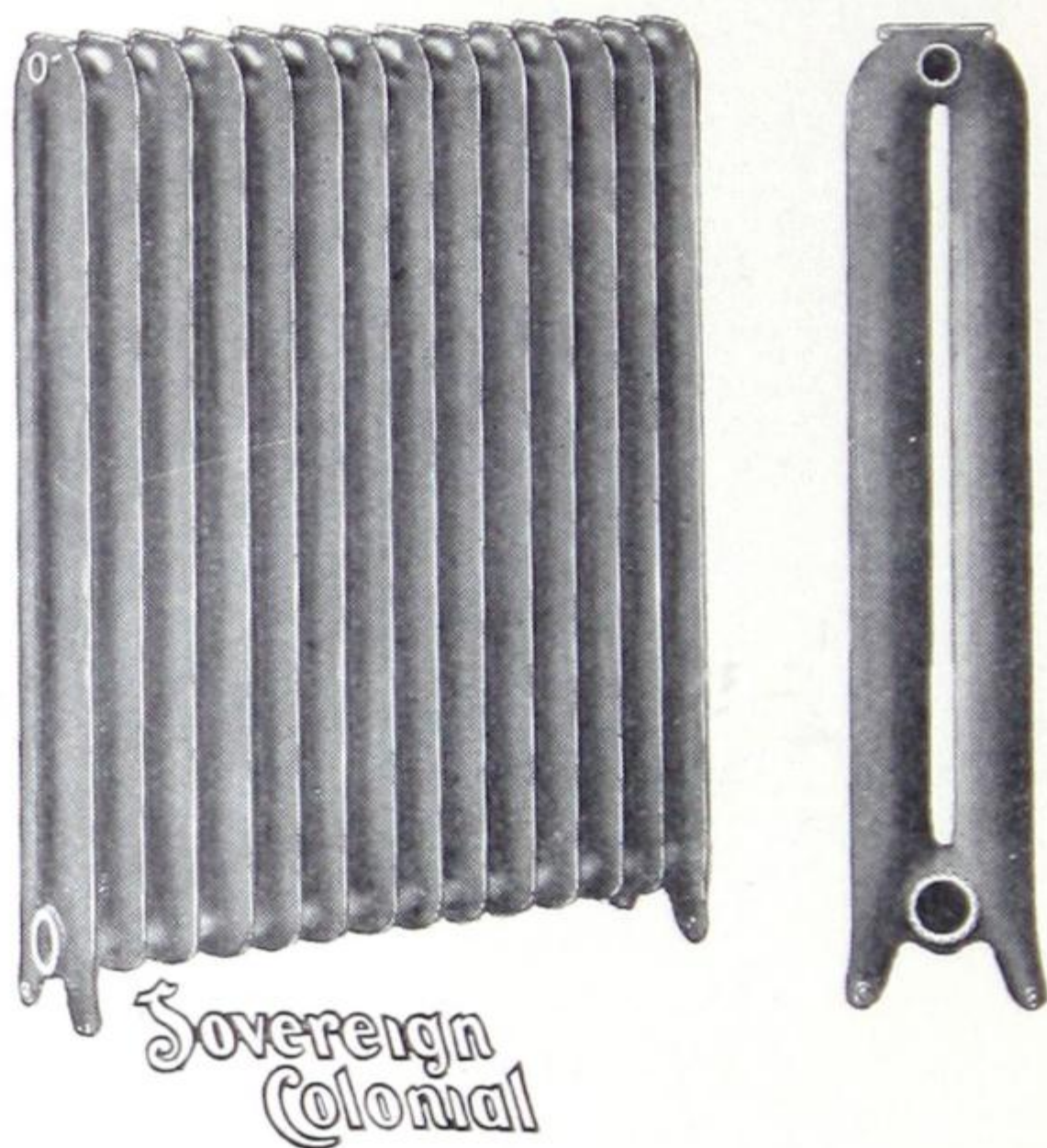


Fig. 6

Made for steam or water

Heating surface, page 61.

Measurements, pages 75-77.

Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Colonial Radiators can be furnished without legs or with pedestal legs. See pages 86 and 88.

“Colonial” Radiators

2 Loops Wide

No. of Sects.	* Length Overall Inches	HEATING SURFACE						
		45" in Height	38½" in Height	32½" in Height	30" in Height	26½" in Height	23" in Height	20½" in Height
		5 Sq. ft. per Section	4 Sq. ft. per Section	3⅓ Sq. ft. per Section	3 Sq. ft. per Section	2⅔ Sq. ft. per Section	2⅓ Sq. ft. per Section	2 Sq. ft. per Section
2	6	10	8	6⅔	6	5⅓	4⅔	4
3	8½	15	12	10	9	8	7	6
4	11	20	16	13⅓	12	10⅔	9⅓	8
5	13½	25	20	16⅔	15	13⅓	11⅔	10
6	16	30	24	20	18	16	14	12
7	18½	35	28	23⅓	21	18⅔	16⅓	14
8	21	40	32	26⅔	24	21⅓	18⅔	16
9	23½	45	36	30	27	24	21	18
10	26	50	40	33⅓	30	26⅔	23⅓	20
11	28½	55	44	36⅔	33	29⅓	25⅔	22
12	31	60	48	40	36	32	28	24
13	33½	65	52	43⅓	39	34⅔	30⅓	26
14	36	70	56	46⅔	42	37⅓	32⅔	28
15	38½	75	60	50	45	40	35	30
16	41	80	64	53⅓	48	42⅔	37⅓	32
17	43½	85	68	56⅔	51	45⅓	39⅔	34
18	46	90	72	60	54	48	42	36
19	48½	95	76	63⅓	57	50⅔	44⅓	38
20	51	100	80	66⅔	60	53⅓	46⅔	40
21	53½	105	84	70	63	56	49	42
22	56	110	88	73⅓	66	58⅔	51⅓	44
23	58½	115	92	76⅔	69	61⅓	53⅔	46
24	61	120	96	80	72	64	56	48
25	63½	125	100	83⅓	75	66⅔	58⅓	50
26	66	130	104	86⅔	78	69⅓	60⅔	52
27	68½	135	108	90	81	72	63	54
28	71	140	112	93⅓	84	74⅔	65⅓	56
29	73½	145	116	96⅔	87	77⅓	67⅔	58
30	76	150	120	100	90	80	70	60
31	78½	155	124	103⅓	93	82⅔	72⅓	62
32	81	160	128	106⅔	96	85⅓	74⅔	64
33	83½	165	132	110	99	88	77	66
34	86	170	136	113⅓	102	90⅔	79⅓	68
35	88½	175	140	116⅔	105	93⅓	81⅔	70
36	91	180	144	120	108	96	84	72

* Length overall includes ½ inch for each plug or bushing.

“Empire” Radiators

Plain

Square Top

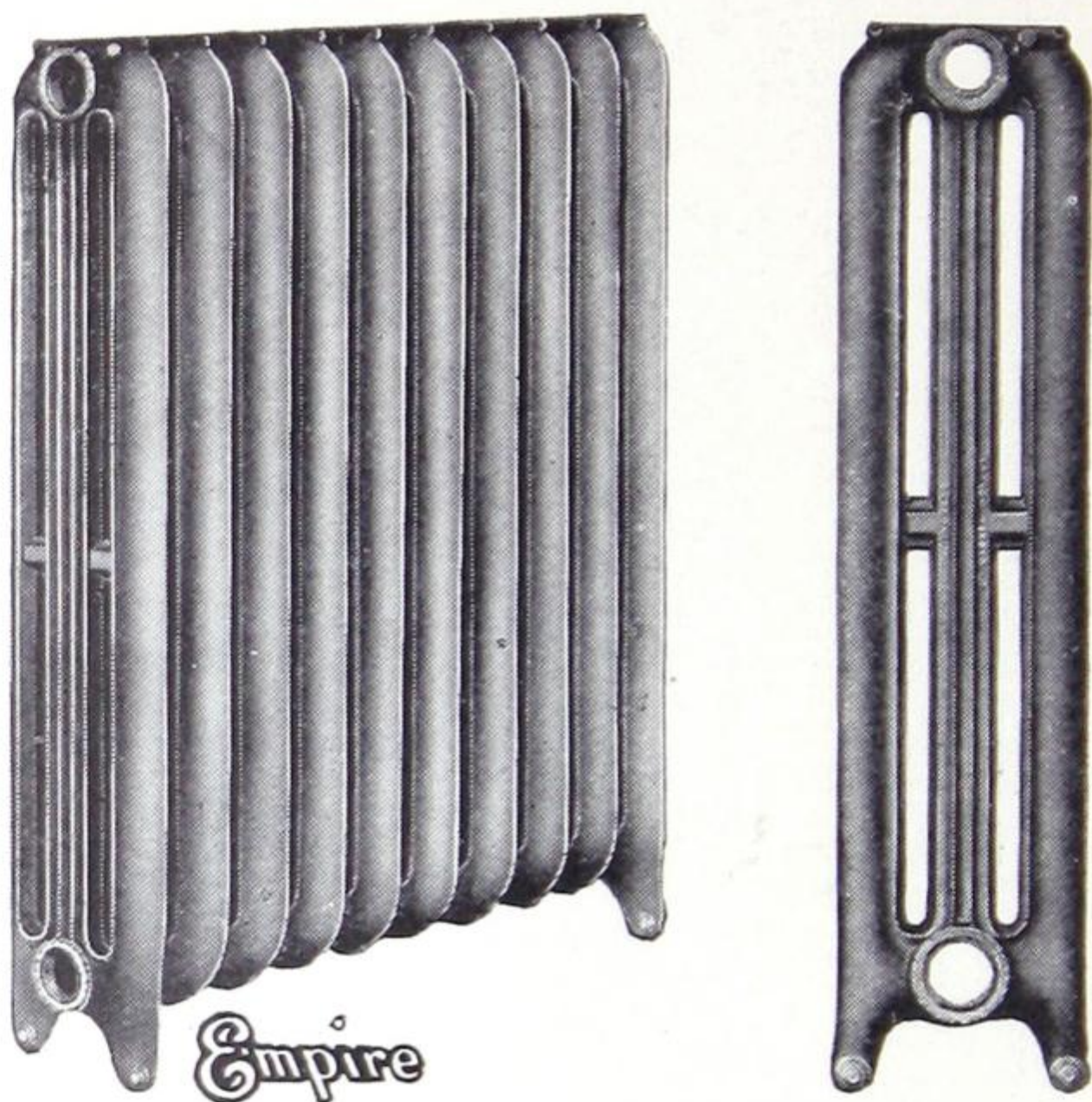


Fig. 00

Made for steam or water.

Heating surface, page 63. Measurements, pages 75-77.

Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Empire Radiators can be furnished without legs or with pedestal legs. See pages 86 and 88.

“Empire” Radiators

3 Loops Wide

No. of Sections	* Length in Ins. Overall	Heating Surface				
		38" in Height	32" in Height	26" in Height	22" in Height	18" in Height
		5 Sq. Ft. per Section	4½ Sq. Ft. per Section	3¾ Sq. Ft. per Section	3 Sq. Ft. per Section	2¼ Sq. Ft. per Section
2	6	10	9	7½	6	4½
3	8½	15	13½	12¼	9	6¾
4	11	20	18	15	12	9
5	13½	25	22½	18¾	15	11¼
6	16	30	27	22½	18	13½
7	18½	35	31½	26¼	21	15¾
8	21	40	36	30	24	18
9	23½	45	40½	33¾	27	20¼
10	26	50	45	37½	30	22½
11	28½	55	49½	41¼	33	24¾
12	31	60	54	45	36	27
13	33½	65	58½	48¾	39	29¼
14	36	70	63	52½	42	31½
15	38½	75	67½	56¼	45	33¾
16	41	80	72	60	48	36
17	43½	85	76½	63¾	51	38¼
18	46	90	81	67½	54	40½
19	48½	95	85½	71¼	57	42¾
20	51	100	90	75	60	45
21	53½	105	94½	78¾	63	47¼
22	56	110	99	82½	66	49½
23	58½	115	103½	86¼	69	51¾
24	61	120	108	90	72	54

* Length overall includes ½ inch for each plug or bushing.

“Monarch” Radiators

Plain

Square Top

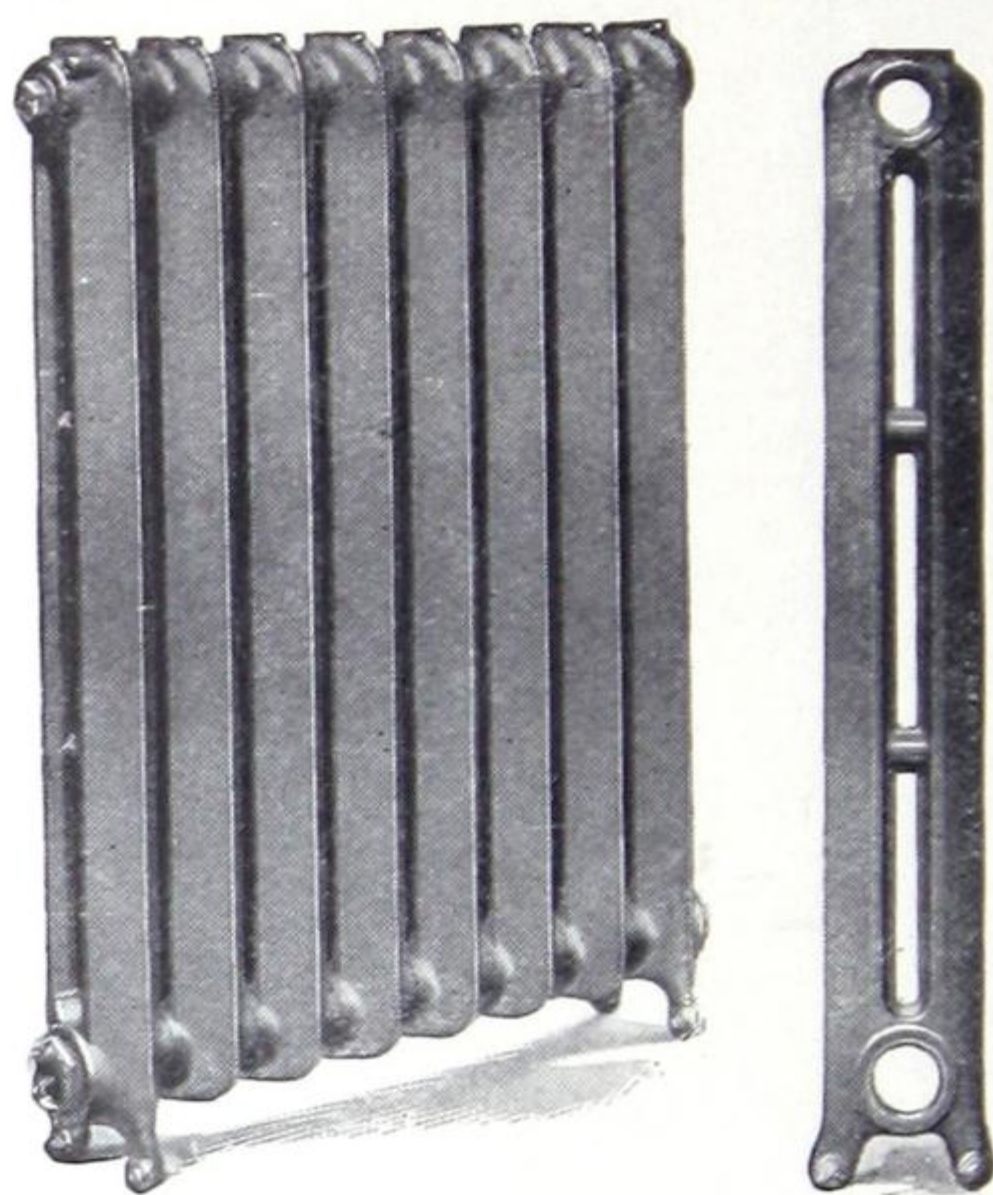


Fig. 0

Made for water only

Heating Surface, page 65. Measurements, pages 75-77.

Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Monarch Radiators can be furnished without legs or with pedestal legs. See pages 86 and 88.

“Monarch” Radiators

2 Loops Wide

No. of Sect's.	* Length in Ins. Overall	Heating Surface				
		38½" in Height	32½" in Height	26½" in Height	20½" in Height	16½" in Height
		4 Sq. Ft. per Section	3½ Sq. Ft. per Section	2⅔ Sq. Ft. per Section	2 Sq. Ft. per Section	1½ Sq. Ft. per Section
2	8	8	6⅔	5⅓	4	3
3	11½	12	10	8	6	4½
4	15	16	13⅓	10⅔	8	6
5	18½	20	16⅔	13⅓	10	7½
6	22	24	20	16	12	9
7	25½	28	23⅓	18⅔	14	10½
8	29	32	26⅔	21⅓	16	12
9	32½	36	30	24	18	13½
10	36	40	33⅓	26⅔	20	15
11	39½	44	36⅔	29⅓	22	16½
12	43	48	40	32	24	18
13	46½	52	43⅓	34⅔	26	19½
14	50	56	46⅔	37⅓	28	21
15	53½	60	50	40	30	22½
16	57	64	53⅓	42⅔	32	24
17	60½	68	56⅔	45⅓	34	25½
18	64	72	60	48	36	27
19	67½	76	63⅓	50⅔	38	28½
20	71	80	66⅔	53⅓	40	30

* Length overall includes ½ inch for each plug or bushing.

“Monarch” Radiators

Plain

Square Top

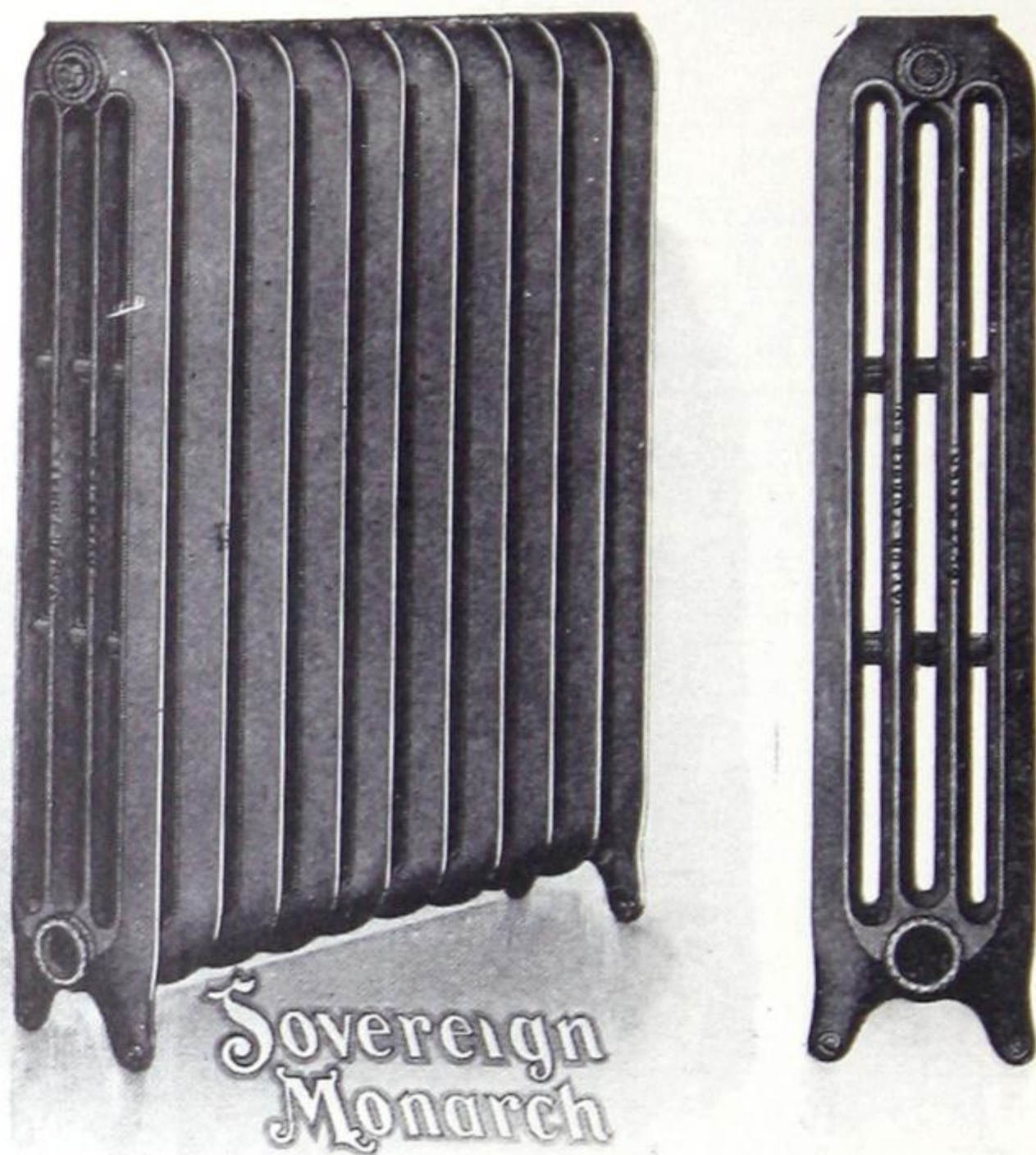


Fig. 2

Made for steam or water

Heating surface, page 67. Measurements, pages 75-77.

Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Monarch Radiators can be furnished without legs or with pedestal legs. See pages 86 and 88.

“Monarch” Radiators

4 Loops Wide

No. of Sections	* Length in Inches Overall	Heating Surface					
		42½" in Height	38½" in Height	32½" in Height	26½" in Height	20½" in Height	16½" in Height
		9⅔ Sq. Ft. per Section	8 Sq. Ft. per Section	6½ Sq. Ft. per Section	5 Sq. Ft. per Section	3½ Sq. Ft. per Section	2½ Sq. Ft. per Section
2	9	19⅓	16	13	10	7	5
3	13	29	24	19½	15	10½	7½
4	17	38⅔	32	26	20	14	10
5	21	48⅓	40	32½	25	17½	12½
6	25	58	48	39	30	21	15
7	29	67⅔	56	45½	35	24½	17½
8	33	77⅓	64	52	40	28	20
9	37	87	72	58½	45	31½	22½
10	41	96⅔	80	65	50	35	25
11	45	106⅓	88	71½	55	38½	27½
12	49	116	96	78	60	42	30
13	53	125⅔	104	84½	65	45½	32½
14	57	135⅓	112	91	70	49	35
15	61	145	120	97½	75	52½	37½
16	65	154⅔	128	104	80	56	40
17	69	164⅓	136	110½	85	59½	42½
18	73	174	144	117	90	63	45
19	77	183⅔	152	123½	95	66½	47½
20	81	193⅓	160	130	100	70	50
21	85	203	168	136½	105	73½	52½
22	89	212⅔	176	143	110	77	55
23	93	222⅓	184	149½	120	80½	57½

* Length overall includes ½ inch for each plug or bushing.

“Monarch” Column Radiators

Plain

Square Top



Sovereign Column

Fig. 12

Made to order only.

List of sizes, page 70.

Style of connections, page 72.

Telegraph Code, pages 203-212

“Colonial” Column Radiators

Plain

Square Top



Sovereign Column

Fig. 13

Made to order only.

List of sizes, page 70.

Style of connections, page 72.

Telegraph Code, pages 203-212

Dimensions of Column Radiators

FOUR LOOP "MONARCH" PATTERN

Number of Sections in Circle	Diameter in Inches		Heating Surface Sq. Ft.	
	Inside	Outside	42½" High	38½" High
12	7	24	116	96
14	11	28	135⅓	112
18	13½	30½	174	144
18	16½	33½	174	144
20	16	33	193⅓	160
20	19	36	193⅓	160
22	17	34	212⅔	176
26	22½	39½	251⅓	208
28	23	40	270⅔	224
32	35½	52½	309⅓	256

TWO LOOP "MONARCH" PATTERN

Number of Sections in Circle	Diameter in Inches		Heating Surface Sq. Ft.	
	Inside	Outside	38½" High	32½" High
14	9	21	56	46⅔
16	11½	23½	64	53⅓
18	14	26	72	60
20	16	28	80	66⅔

TWO LOOP "COLONIAL" PATTERN

Number of Sections in Circle	Diameter in Inches		Heating Surface Sq. Ft.	
	Inside	Outside	45" High	38½" High
16	7	22	80	64
18	9¼	24	90	72
20	10½	25½	100	80
20	11¾	27	100	80
24	12½	27½	120	96
24	18	.....	120	96
28	16½	31½	140	112
32	20½	35½	160	128
32	22¼	37	160	128
38	25	40	190	152
40	24	39	200	160
44	33¼	48	220	176
46	36½	51½	230	184

Column Radiation can also be supplied in Three Loop "Empire" pattern.

Corner Radiators

Plain

Square Top

2, 3 or 4 Loops Wide



Fig. 10

Angle Window Radiators

Plain

Square Top

2, 3 or 4 Loops Wide



Fig. 17

When ordering corners, state number of sections on each end and which end connections are to be made.

Send Templet for Angle Radiators, see page 73.

Made to order only.

Semi-Circular Window Radiators

Plain

Square Top

2, 3 or 4 Loops Wide



Fig. 18

Send Templet covering exact measurements, see page 73.
Made to order only.

Methods of Tapping Radiator Loops

Style A

Style B



Fig. 29
Showing Supply Pipe on side
of Loop.



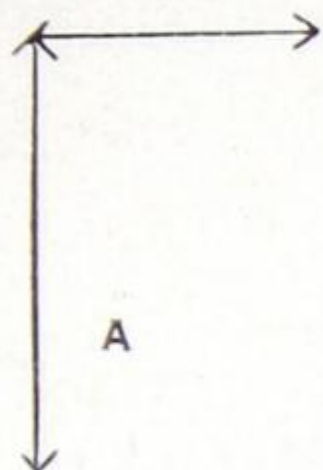
Fig. 30
Showing Supply Pipe on bottom
of Loop.

Other Methods of Connecting:

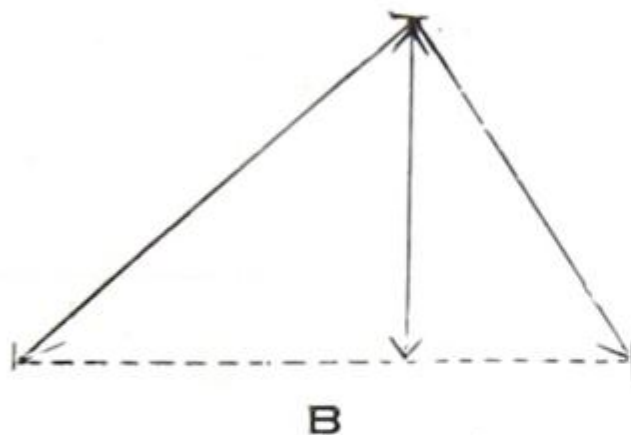
- C—Single connections at opposite ends.
- D—Twin connections at same ends.
- E—Top supply and bottom return at opposite ends.
- F—Top supply and bottom returns at same ends.
- G—One pipe connections on one end only for steam.
- A and B put anywhere on sections to order.

See list of Pipe Tappings for Radiators, pages 77-79.

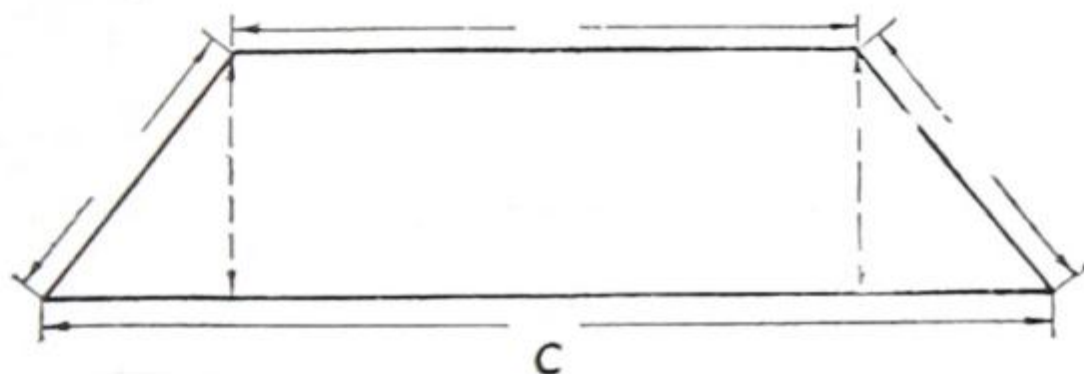
Showing How to Take Measurements



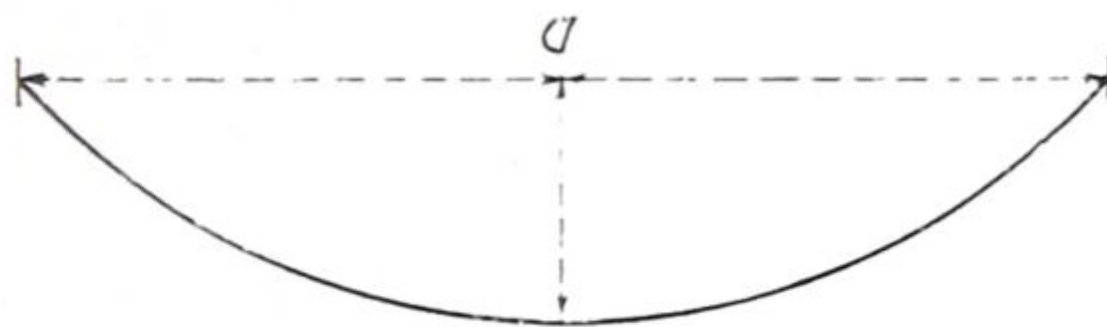
Corner Templet



Single Angle Templet



Double Angle Templet



Curved Templet

When laying out Angle, Corner or Curved Radiators similar to above be careful to measure closely. State distances outside, indicated by arrows, in every case. Always say what style of connections and on which ends. Special Tappings as shown on page 72 may be provided.

Templets should be made of wood or heavy paper.

Extra High Legs
For "Sovereign" Radiators
2, 3 or 4 Loops Wide

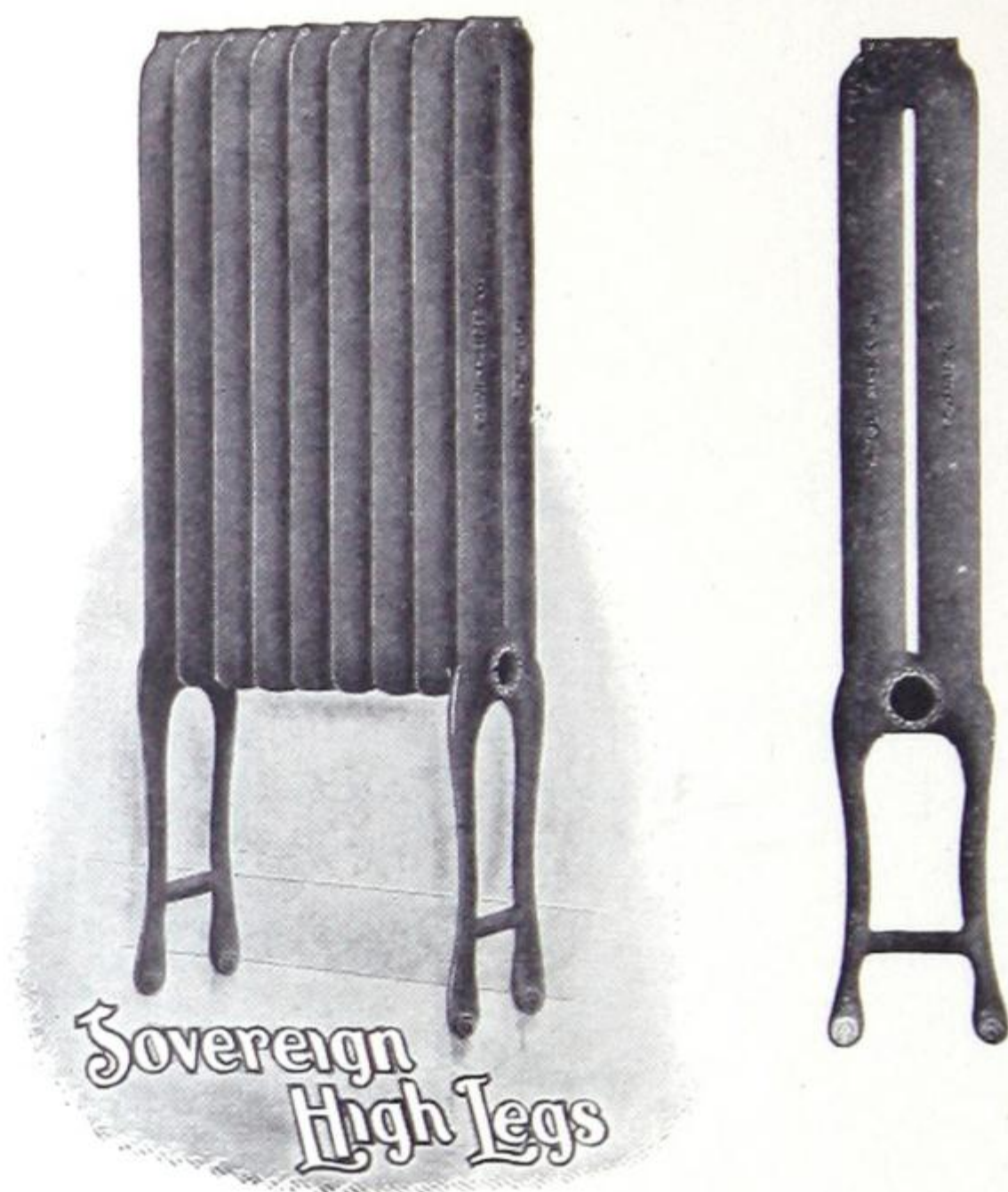


Fig. 11

The above are made to order only.

For Steam or Water

Measurements of "Sovereign" Radiators

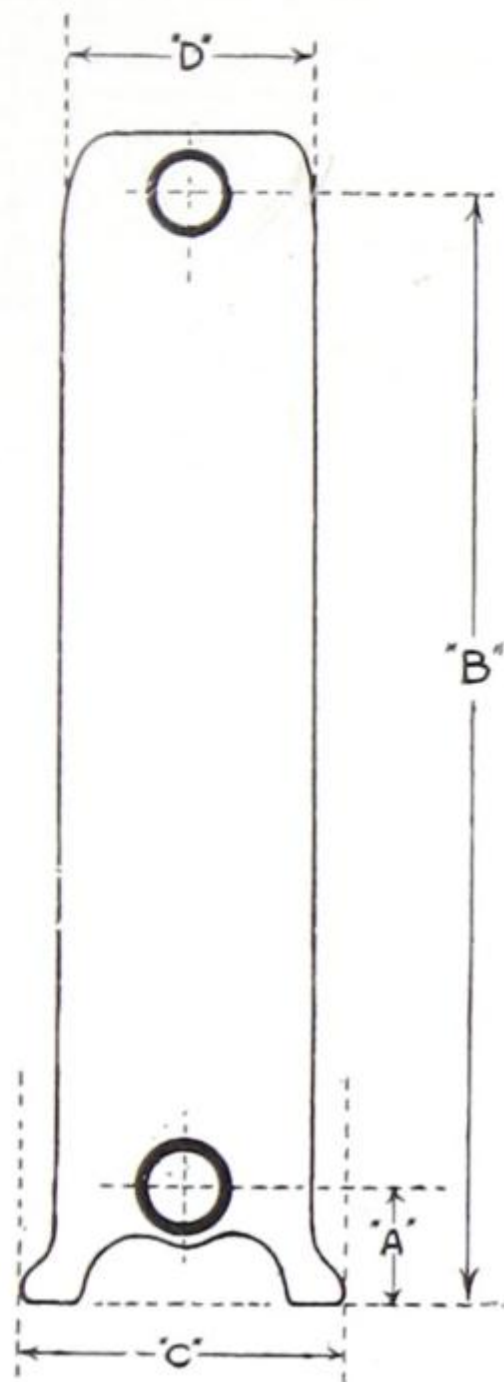


Fig. 93

- A—Distance from floor to centre of bottom tapping.
- B—Distance from floor to centre of top tapping.
- C—Width at feet.
- D—Width of sections.

FROM FLOOR TO CENTRE OF BOTTOM
ECCENTRIC TAPPINGS

Tapping	Monarch 2 Loop	Colonial	Empire	Monarch 4 Loop	Window 5 Loop
$\frac{3}{4}$	Made for Hot Water only	3	$3\frac{13}{16}$	$3\frac{5}{16}$	$2\frac{1}{2}$
$\frac{1}{2}$		$2\frac{3}{4}$	$3\frac{9}{16}$	$3\frac{1}{16}$	$2\frac{1}{2}$

Measurements of "Sovereign" Radiators

Measurements are in Inches

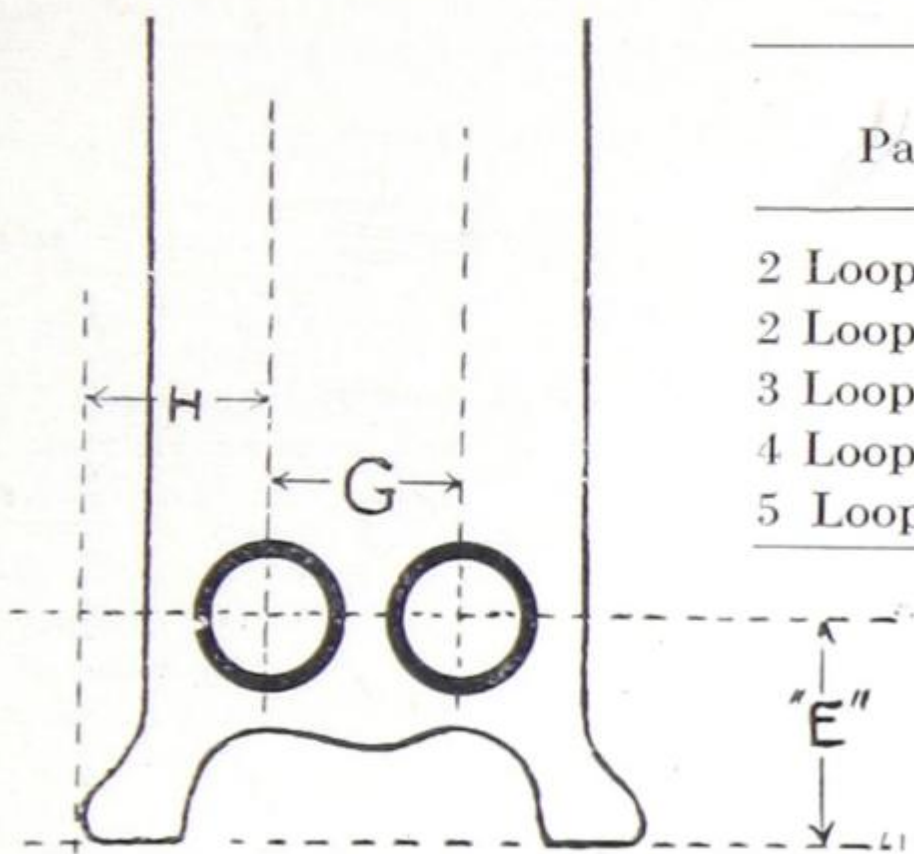
Pattern and Catalogue Height		A	B	C	D	Face to Face of Each Section
2 Loop Monarch	38½	3¾	36¾	6	5¾	3½
	32½	3¾	30¾	6	5¾	3½
	26½	3¾	24½	6	5¾	3½
	20½	3¾	18¾ ₁₆	6	5¾	3½
	16½	3¾	14½	6	5¾	3½
2 Loop Colonial	45	3¾	42¾	7½	7½	2½
	38½	3¾	36¾ ₁₆	7½	7½	2½
	32½	3¾	30¾ ₁₆	7½	7½	2½
	30	3¾	28¾ ₁₆	7½	7½	2½
	26½	3¾	24¾ ₁₆	7½	7½	2½
	23	3¾	21¾ ₁₆	7½	7½	2½
	20½	3¾	18¾ ₁₆	7½	7½	2½
3 Loop Empire	38	4½	36	8¾	8¾	2½
	32	4½	30¾ ₁₆	8¾	8¾	2½
	26	4½	24	8¾	8¾	2½
	22	4½	20¾ ₁₆	8¾	8¾	2½
	18	4½	16¾ ₈	8¾	8¾	2½
4 Loop Monarch	42½	4	40¾ ₁₆	8½	8½	4
	38½	4	36¾ ₁₆	8½	8½	4
	32½	4	30¾ ₈	8½	8½	4
	26½	4	24¾ ₄	8½	8½	4
	20½	4	18¾ ₈	8½	8½	4
	16½	4	14¾ ₈	8½	8½	4
5 Loop Window	20	3	18¾ ₃₂	12¾	12¾	3
	18	3	16¾ ₃₂	12¾	12¾	3
	16	3	14¾ ₃₂	12¾	12¾	3
	14	3	12¾ ₃₂	12¾	12¾	3
	13	3	11¾ ₆₄	12¾	12¾	3

Add ½ inch on each end of Radiator if bushings are used.

Measurements of "Sovereign" Radiators

Twin Tappings

Measurements are in inches.



Pattern	E	G	H
2 Loop Monarch	3 3/4	3 3/8	1 5/16
2 Loop Colonial	3 3/4	3 3/8	2 1/8
3 Loop Empire	4 1/2	3 3/8	2 3/4
4 Loop Monarch	4	3 3/8	2 9/16
5 Loop Window	3	3 1/4	4 3/4

Fig. 94

STANDARD TAPPINGS—STEAM

One-Pipe Work

Up to 25 square feet, inclusive.....	1	inch
Above 25 up to 60 square feet.....	1 1/4	inch
Above 60 up to 100 square feet.....	1 1/2	inch
Above 100 square feet.....	2	inch

Two-Pipe Work

Up to 50 square feet, inclusive.....	1	x	3/4	inch
Above 50 up to 95 square feet.....	1 1/4	x	1	inch
Above 95 square feet.....	1 1/2	x	1 1/4	inch

WATER

Tapped for Supply and Return or Twin Connection

Up to 50 square feet, inclusive.....	1	x	1	inch
Above 50 up to 100 square feet.....	1 1/4	x	1 1/4	inch
Above 100 square feet.....	1 1/2	x	1 1/2	inch

All Twin Connection Water Radiators are tapped left-hand and all single connection or opposite end tappings will be right-hand thread, unless otherwise specified on orders.

All Wall Radiators for water are tapped top and bottom, same ends, left-hand unless otherwise specified.

All Steam Radiators, one pipe, are tapped left-hand, and if two-pipe tapping is desired tappings are right-hand unless otherwise specified on order.

“Sovereign” Radiators

Tappings of Radiators

For Special Vapor and Steam Systems

Webster Gravity System Using Hot Water Type Radiators Top inlet, bottom outlet opposite ends.			Webster Vacuum System Using Steam or Water Radiators Top or bottom inlet, bottom outlet opposite ends.		
Size of Radiator	Inlet Inches	Outlet Inches	Size of Radiator	Inlet Inches	Outlet Inches
1 to 40 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$	1 to 50 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$
41 to 100 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$	51 to 120 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$
101 to 180 Sq. Ft.	1	$\frac{1}{2}$	121 to 250 Sq. Ft.	1	$\frac{1}{2}$
181 to 300 Sq. Ft.	$1\frac{1}{4}$	$\frac{3}{4}$	251 to 450 Sq. Ft.	$1\frac{1}{4}$	$\frac{3}{4}$
301 to 450 Sq. Ft.	$1\frac{1}{2}$	$\frac{3}{4}$	451 to 700 Sq. Ft.	$1\frac{1}{2}$	$\frac{3}{4}$

Trane Vapor System Using Hot Water Type Radiators Top inlet, bottom outlet opposite ends			Trane Vacuum System Using Steam or Water Radiators Top or bottom inlet, bottom outlet opposite ends.		
Size of Radiator	Inlet Inches	Outlet Inches	Size of Radiator	Inlet Inches	Outlet Inches
1 to 30 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$	1 to 45 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$
31 to 100 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$	46 to 110 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$
101 to 180 Sq. Ft.	1	$\frac{1}{2}$	111 to 210 Sq. Ft.	1	$\frac{1}{2}$
181 to 300 Sq. Ft.	$1\frac{1}{4}$	$\frac{3}{4}$	211 to 500 Sq. Ft.	$1\frac{1}{4}$	$\frac{3}{4}$

All Tappings are right hand unless otherwise ordered, Returns being tapped eccentric.

Radiators for Vacuum Systems have no air vents (if tapped are plugged).

“Sovereign” Radiators

Tappings of Radiators

For Special Vapor and Steam Systems

Marsh Gravity System Using Hot Water Type Radiators Top inlet, bottom outlet oposite ends.			Marsh Vacuum System Using Steam Radiators Bottom connections, opposite ends.		
Size of Radiator	Inlet Inches	Outlet Inches	Size of Radiator	Inlet Inches	Outlet Inches
1 to 40 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$	1 to 80 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$
41 to 100 Sq. Ft.	1	$\frac{1}{2}$	81 to 150 Sq. Ft.	1	$\frac{1}{2}$
101 to 180 Sq. Ft.	$1\frac{1}{4}$	$\frac{1}{2}$	151 to 250 Sq. Ft.	$1\frac{1}{4}$	$\frac{1}{2}$
181 to 280 Sq. Ft.	$1\frac{1}{2}$	$\frac{3}{4}$	251 to 400 Sq. Ft.	$1\frac{1}{2}$	$\frac{3}{4}$
Dunham(Gravity)Home System Using Hot Water Type Radiators Top inlet, bottom outlet opposite ends.			Dunham Vacuum System Using Steam Radiators Bottom connections, opposite ends.		
Size of Radiator	Inlet Inches	Outlet Inches	Size of Radiator	Inlet Inches	Outlet Inches
1 to 25 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$	1 to 25 Sq. Ft.	$\frac{1}{2}$	$\frac{1}{2}$
26 to 100 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$	26 to 80 Sq. Ft.	$\frac{3}{4}$	$\frac{1}{2}$
101 to 180 Sq. Ft.	1	$\frac{1}{2}$	81 to 150 Sq. Ft.	1	$\frac{1}{2}$
180 to 300 Sq. Ft.	$1\frac{1}{4}$	$\frac{1}{2}$	151 to 300 Sq. Ft.	$1\frac{1}{4}$	$\frac{1}{2}$
			301 to 350 Sq. Ft.	$1\frac{1}{2}$	$\frac{1}{2}$
			351 to 450 Sq. Ft.	$1\frac{1}{2}$	$\frac{3}{4}$

All Tappings are right hand unless otherwise ordered, Returns being tapped eccentric.

Radiators for Vacuum Systems have no air vents (if tapped, are plugged).

“Colonial” Hospital Radiators

Plain

Square Top

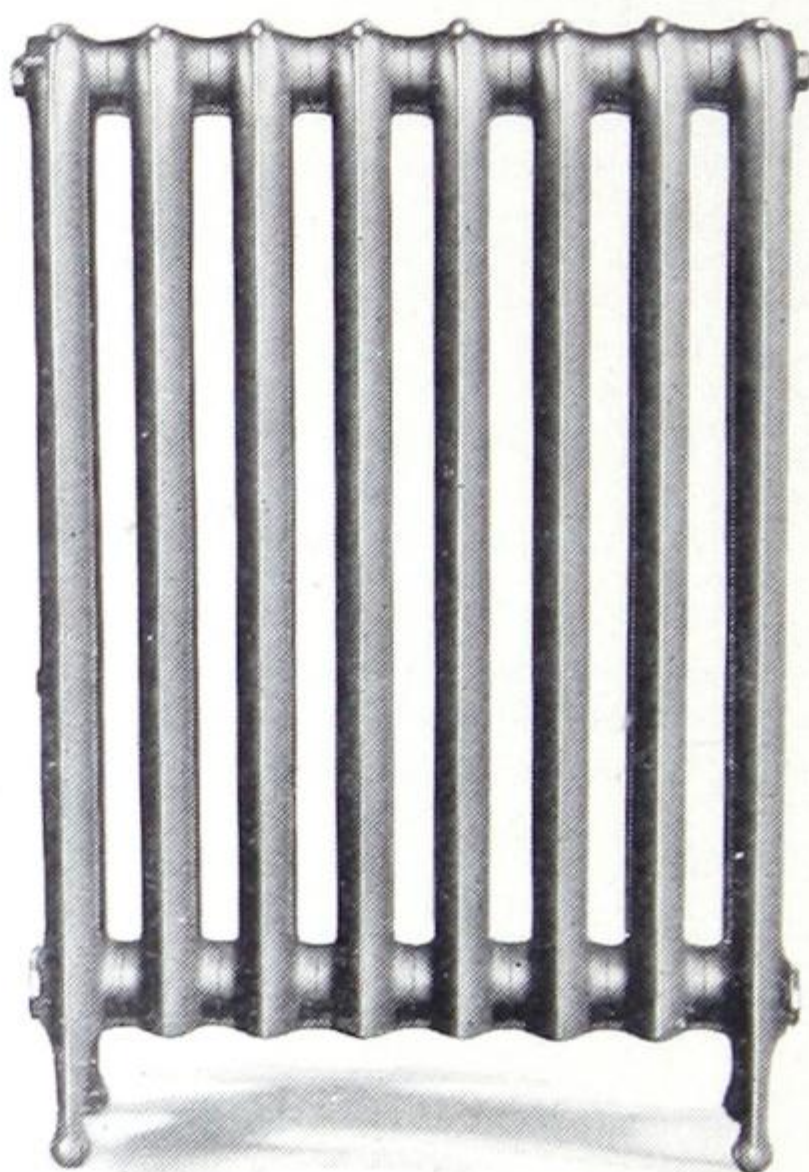


Fig. 95

Made for steam or water.

Heating surface, page 81. Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Hospital Radiators are built with the sections wide apart to permit of easy cleaning. Distance centre to centre of hubs $3\frac{1}{2}$ inches on Colonial pattern.

“Colonial” Hospital Radiators

2 Loops Wide

No. of Sects.	* Length in Inches Overall	Heating Surface						
		45" in Height	38½" in Height	32½" in Height	30" in Height	26½" in Height	23" in Height	20½" in Height
		5 Sq. Ft. per sect.	4 Sq. Ft. per sect.	3⅓ Sq. Ft. per sect.	3 Sq. Ft. per sect.	2⅔ Sq. Ft. per sect.	2⅓ Sq. Ft. per sect.	2 Sq. Ft. per sect.
2	7	10	8	6⅔	6	5⅓	4⅔	4
3	10½	15	12	10	9	8	7	6
4	14	20	16	13⅓	12	10⅔	9⅓	8
5	17½	25	20	16⅔	15	13⅓	11⅔	10
6	21	30	24	20	18	16	14	12
7	24½	35	28	23⅓	21	18⅔	16⅓	14
8	28	40	32	26⅔	24	21⅓	18⅔	16
9	31½	45	36	30	27	24	21	18
10	35	50	40	33⅓	30	26⅔	23⅓	20
11	38½	55	44	36⅔	33	29⅓	25⅔	22
12	42	60	48	40	36	32	28	24
13	45½	65	52	43⅓	39	34⅔	30⅓	26
14	49	70	56	46⅔	42	37⅓	32⅔	28
15	52½	75	60	50	45	40	35	30
16	56	80	64	53⅓	48	42⅔	37⅓	32
17	59½	85	68	56⅔	51	45⅓	39⅔	34
18	63	90	72	60	54	48	42	36
19	66½	95	76	63⅓	57	50⅔	44⅓	38
20	70	100	80	66⅔	60	53⅓	46⅔	40
21	73½	105	84	70	63	56	49	42
22	77	110	88	73⅓	66	58⅔	51⅓	44
23	80½	115	92	76⅔	69	61⅓	53⅔	46
24	84	120	96	80	72	64	56	48
25	87½	125	100	83⅓	75	66⅔	58⅓	50

* Length overall includes ½ inch for each plug or bushing.

“Empire” Hospital Radiators

Plain

Square Top

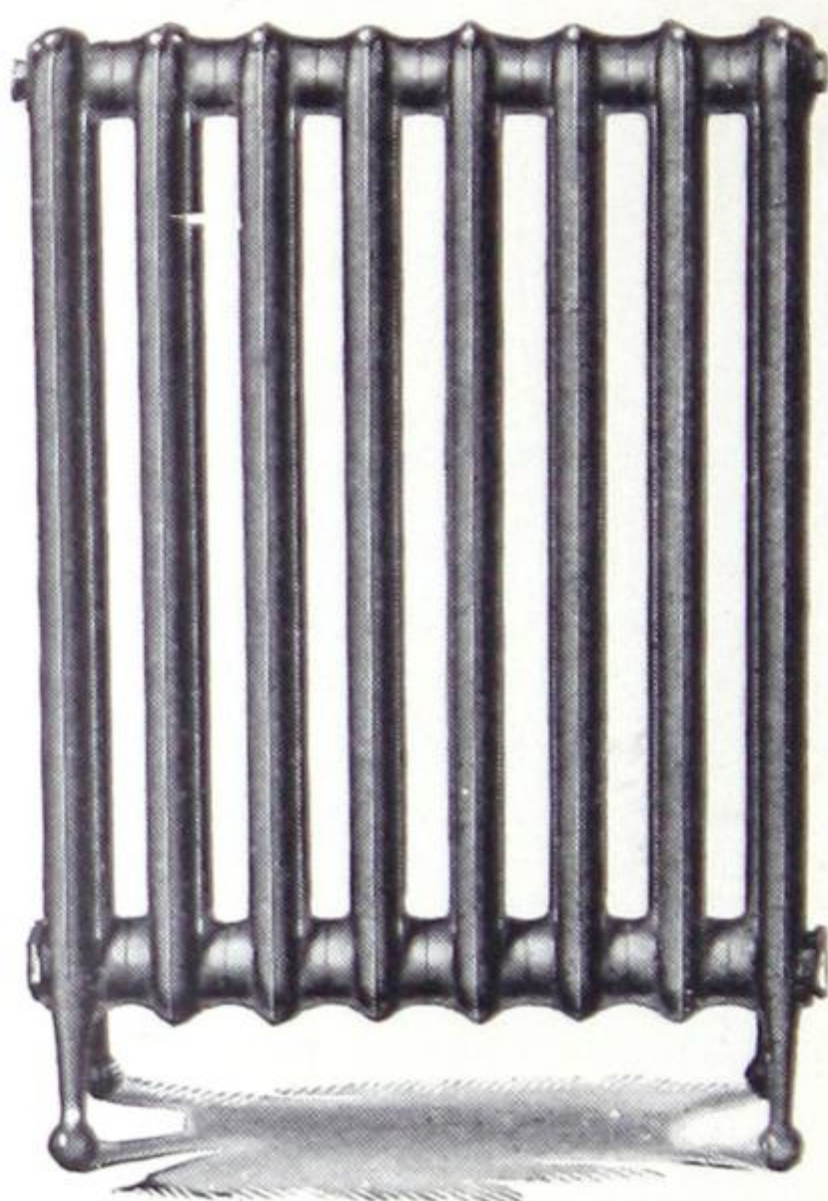


Fig. 96

Made for steam or water.

Heating surface, page 83. Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Hospital Radiators are built with the sections wide apart to permit of easy cleaning. Distance centre to centre of hubs $3\frac{1}{2}$ inches on Empire pattern.

“Empire” Hospital Radiators**3 Loops Wide**

No. of Sects.	* Length in Ins. Overall	Heating Surface				
		38" in Height	32" in Height	26" in Height	22" in Height	18" in Height
		5 Sq. Ft. per Section	4½ Sq. Ft. per Section	3¾ Sq. Ft. per Section	3 Sq. Ft. per Section	2¼ Sq. Ft. per Section
2	7	10	9	7½	6	4½
3	10½	15	13½	11¼	9	6¾
4	14	20	18	15	12	9
5	17½	25	22½	18¾	15	11¼
6	21	30	27	22½	18	13½
7	24½	35	31½	26¼	21	15¾
8	28	40	36	30	24	18
9	31½	45	40½	33¾	27	20¼
10	35	50	45	37½	30	22½
11	38½	55	49½	41¼	33	24¾
12	42	60	54	45	36	27
13	45½	65	58½	48¾	39	29¼
14	49	70	63	52½	42	31½
15	52½	75	67½	56¼	45	33¾
16	56	80	72	60	48	36
17	59½	85	76½	63¾	51	38¼
18	63	90	81	67½	54	40½
19	66½	95	85½	71¼	57	42¾
20	70	100	90	75	60	45
21	73½	105	94½	78¾	63	47¼
22	77	110	99	82½	66	49½
23	80½	115	103½	86¼	69	51¾
24	84	120	108	90	72	54
25	87½	125	112½	93¾	75	56¼

* Length overall includes ½ inch for each plug or bushing.

“Monarch” Hospital Radiators

Plain

Square Top

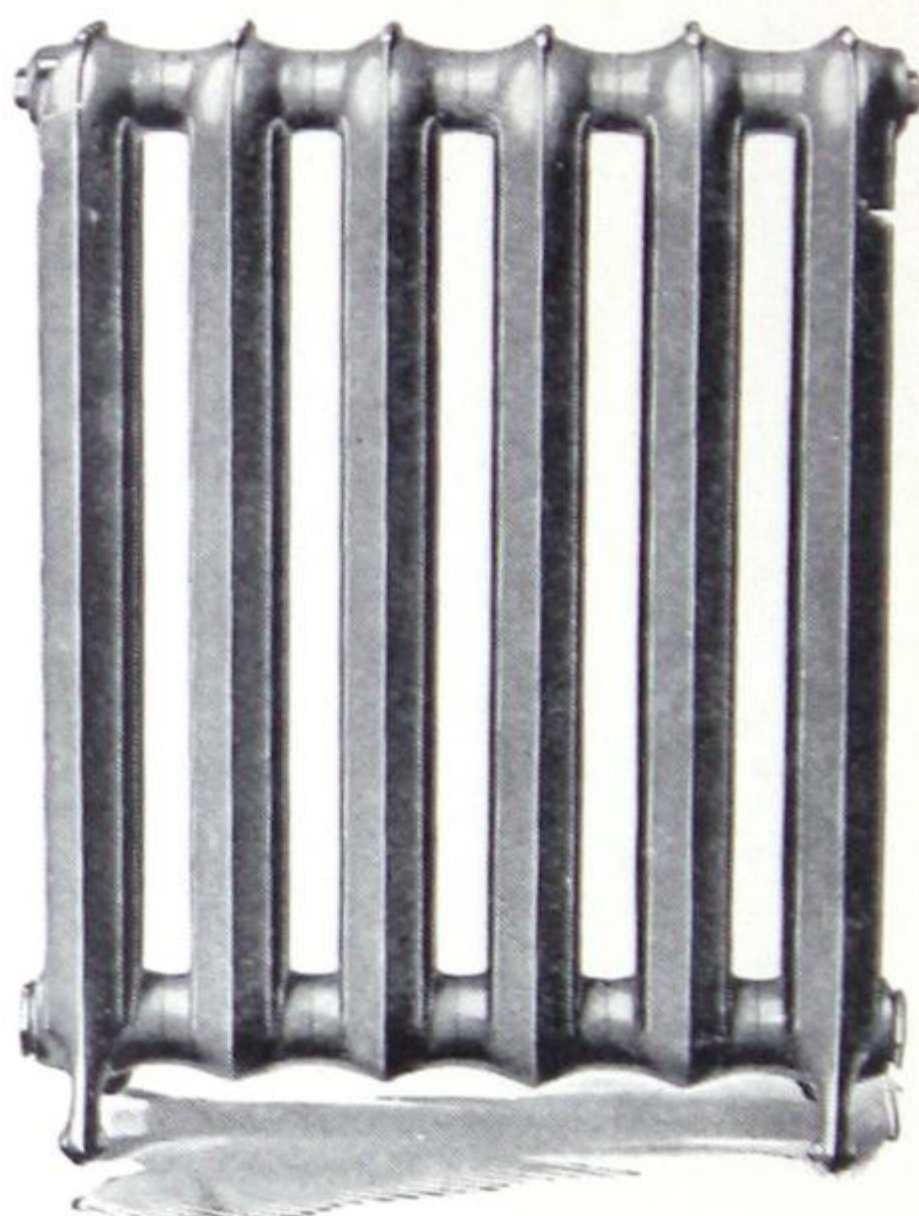


Fig. 97

Made for steam or water.

Heating surface, page 85. Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Hospital Radiators are built with the sections wide apart to permit of easy cleaning. Distance centre to centre of hubs 5 inches on Monarch pattern.

“Monarch” Hospital Radiators

4 Loops Wide

No. of Sections	* Length in Inches Overall	Heating Surface					
		42½" in Height	38½" in Height	32½" in Height	26½" in Height	20½" in Height	16½" in Height
		9⅔ Sq. Ft. per sect.	8 Sq. Ft. per sect.	6½ Sq. Ft. per sect.	5 Sq. Ft. per sect.	3½ Sq. Ft. per sect.	2½ Sq. Ft. per sect.
2	10	19⅓	16	13	10	7	5
3	15	29	24	19½	15	10½	7½
4	20	38⅔	32	26	20	14	10
5	25	48⅓	40	32½	25	17½	12½
6	30	58	48	39	30	21	15
7	35	67⅔	56	45½	35	24½	17½
8	40	77⅓	64	52	40	28	20
9	45	87	72	58½	45	31½	22½
10	50	96⅔	80	65	50	35	25
11	55	106⅓	88	71½	55	38½	27½
12	60	116	96	78	60	42	30
13	65	125⅔	104	84½	65	45½	32½
14	70	135⅓	112	91	70	49	35
15	75	145	120	97½	75	52½	37½
16	80	154⅔	128	104	80	56	40
17	85	164⅓	136	110½	85	59½	42½
18	90	174	144	117	90	63	45
19	95	183⅔	152	123½	95	66½	47½
20	100	193⅓	160	130	100	70	50
21	105	203	168	136½	105	73½	52½
22	110	212⅔	176	143	110	77	55
23	115	222⅓	184	149½	115	80½	57½
24	120	232	192	156	120	84	60
25	125	241⅔	200	162½	125	87½	62½

* Length overall includes ½ inch for each plug or bushing.

“Sovereign” Legless Radiators

Standard Pattern

Plain

Square Top



Fig. 20

For steam or water. 2, 3 or 4 loops wide.

Heating surface, pages 61-67. Radiator Brackets, pages 100-104.

Telegraph Code, pages 203-212

“Sovereign” Legless Radiators

Hospital Pattern

Plain

Square Top

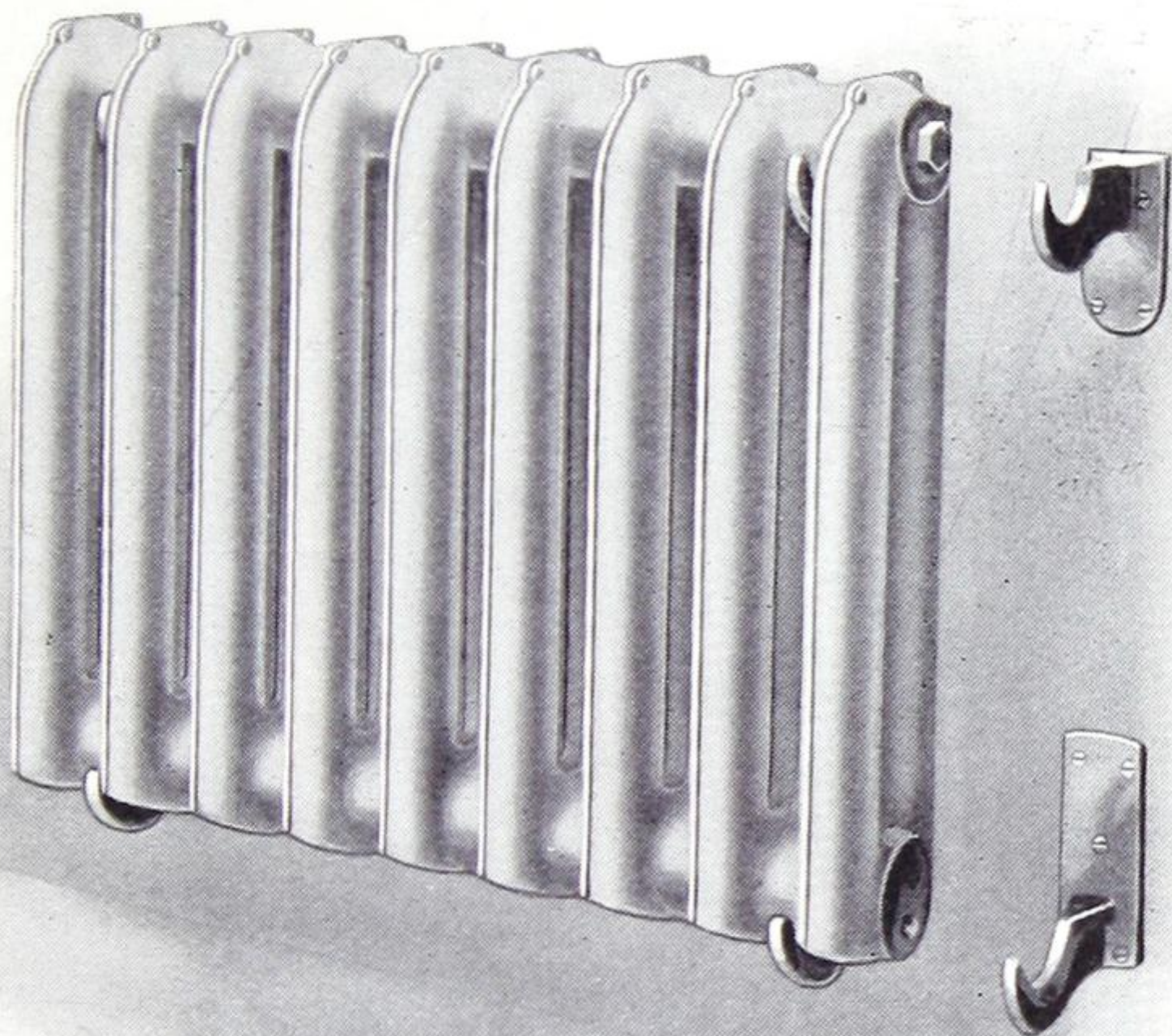


Fig. 24

For steam or water. 2, 3 or 4 loops wide.

Heating surface, pages 81-85. Radiator Brackets, pages 100-104

Telegraph Code, pages 203-212

“Sovereign” Pedestal Leg Radiators

Standard Pattern

Plain

Square Top

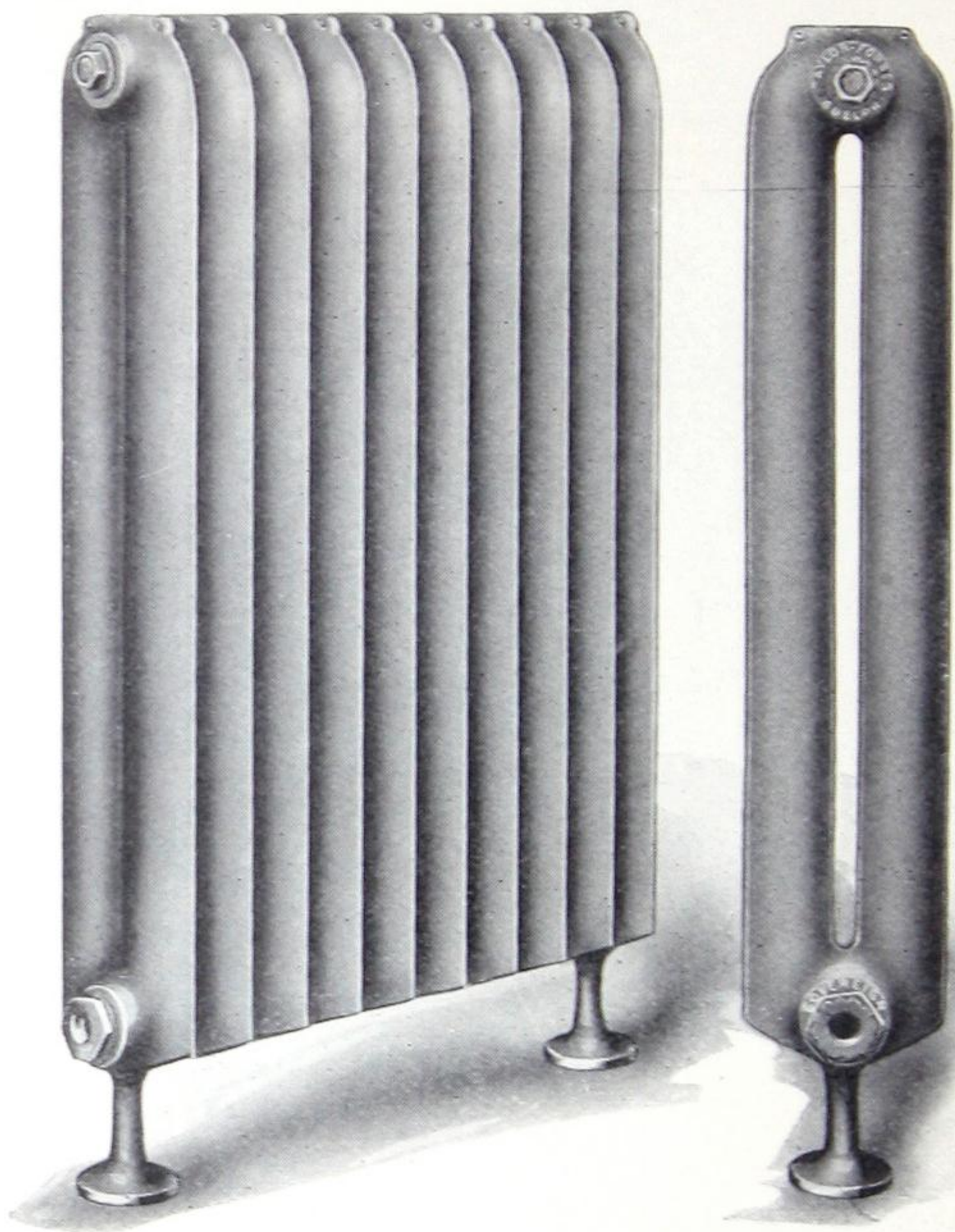


Fig. 19

For steam or water. 2, 3 $\frac{1}{2}$ or 4 loops wide.

Heating surface, pages 61-67.

Method of supporting from wall, page 90.

Telegraph Code, pages 203-212

Distance from floor to centre of 2 inch hub, 6 inches.

“Sovereign” Pedestal Leg Radiators

Hospital Pattern

Plain

Square Top

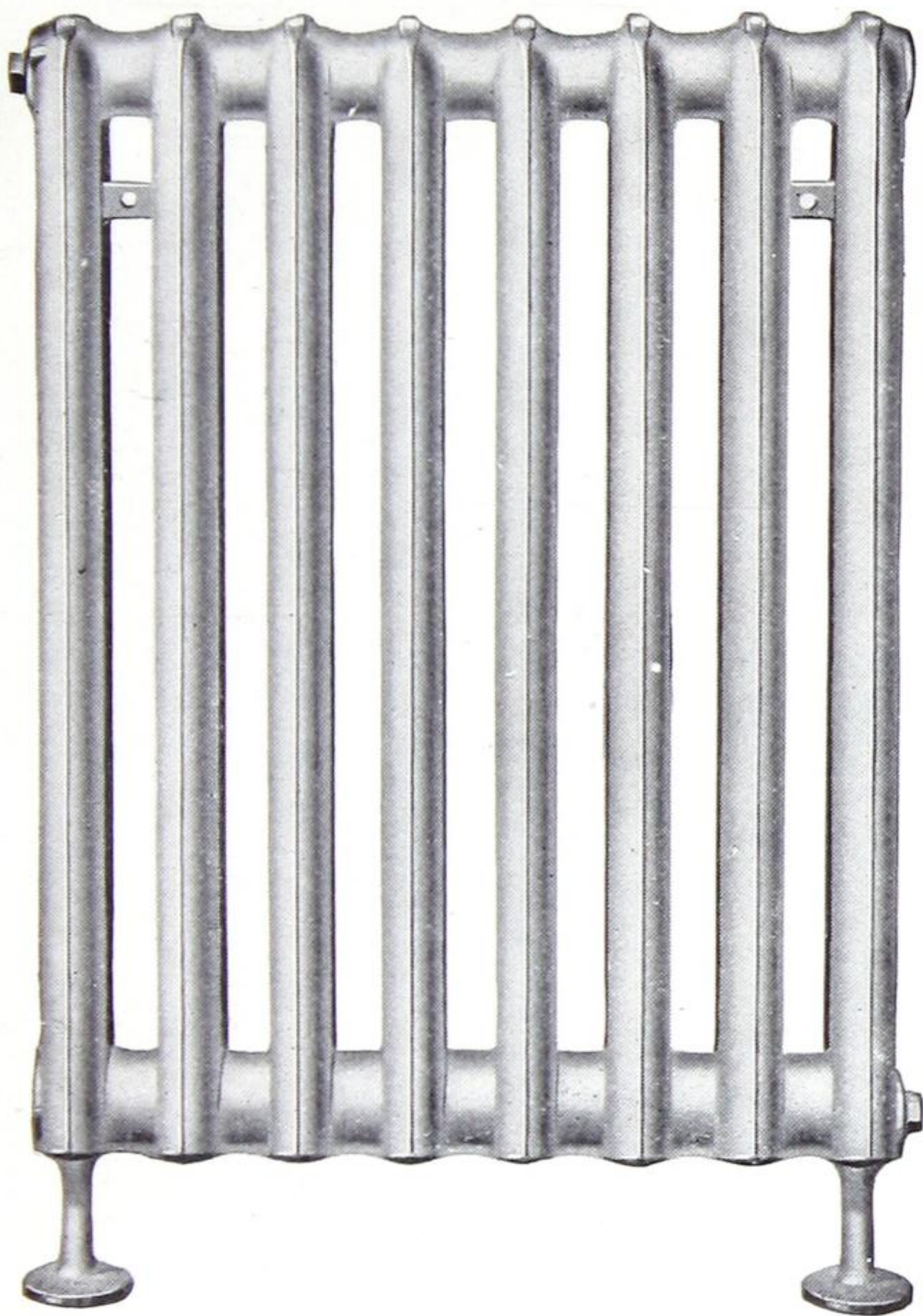


Fig. 23

For steam or water. 2, 3 or 4 loops wide.

Heating surface, pages 81-85.

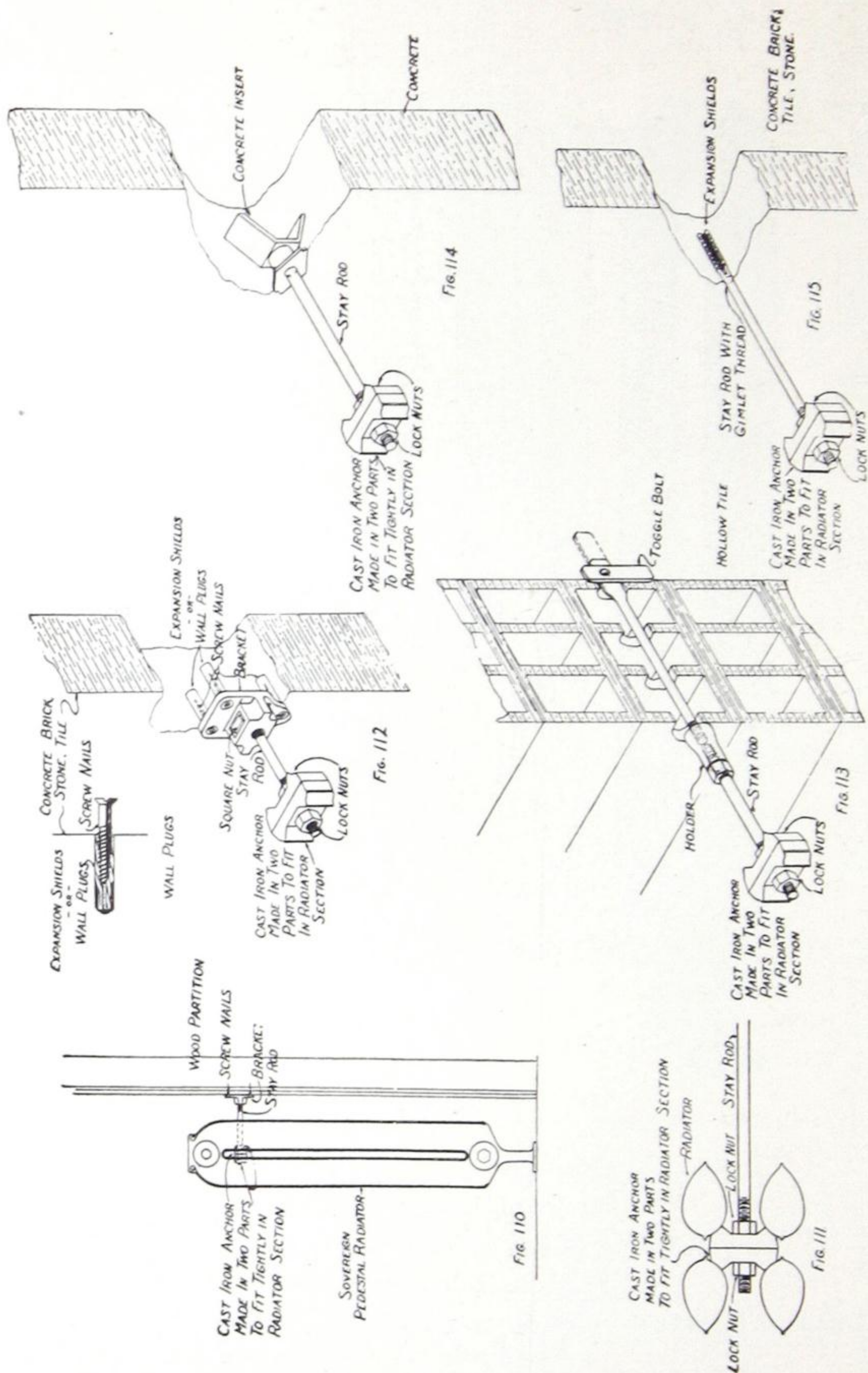
Method of supporting from wall, page 90.

Telegraph Code, pages 203-212

Distance from floor to centre of 2 inch hub, 6 inches. Any special height made to order.

"Sovereign" Pedestal Leg Radiators

Illustrating the method of supporting "Sovereign" Pedestal Leg Radiators from a hollow-tile or plaster wall.



Sovereign "Empress" Wall Radiators

For Steam or Water

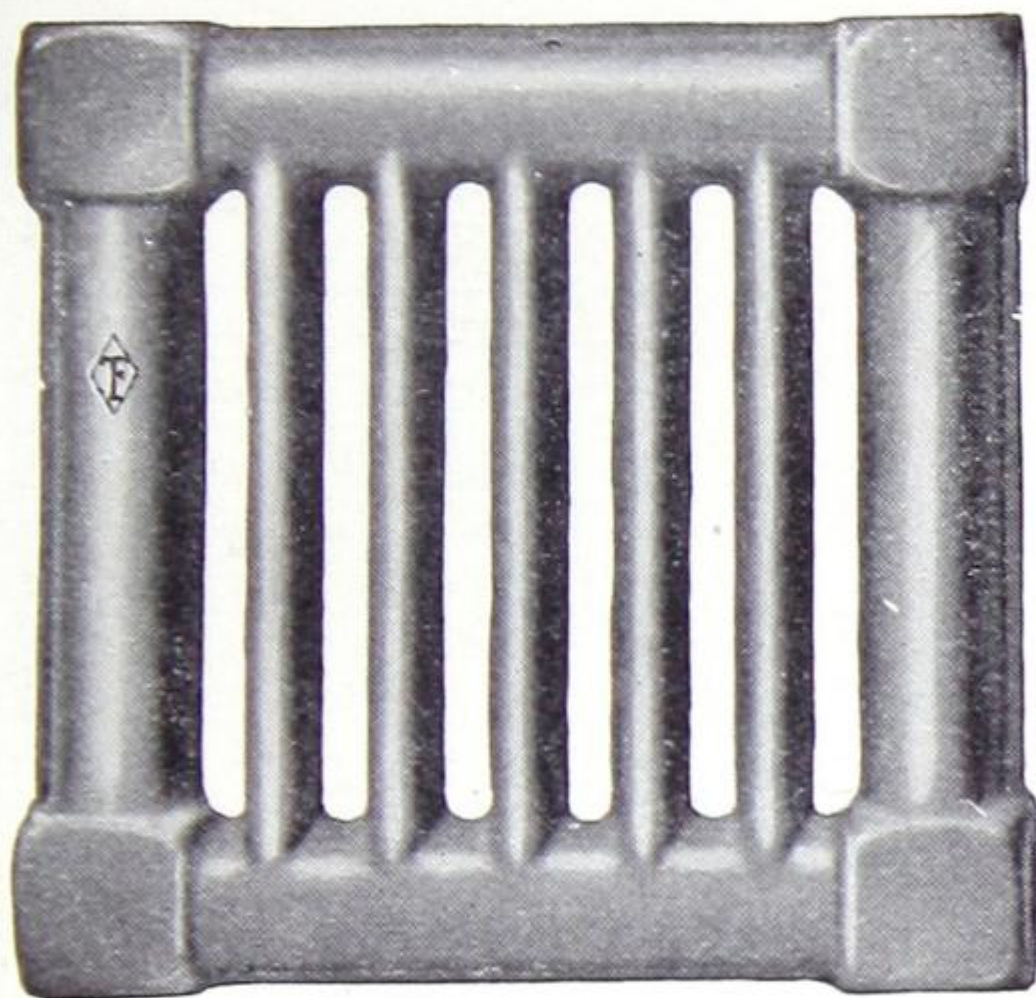


Fig. 98

6 Square Foot Section
—15 inches wide, by
15 inches long.

Thickness $3\frac{1}{8}$ inches.

Distance between
centre of bottom and
top openings $11\frac{7}{8}$ ins.

9 Square Foot Section
—15 inches wide by
22 inches long.

Thickness $3\frac{1}{8}$ inches.

Distance between
centre of bottom and
top openings,
vertical $18\frac{3}{4}$ inches,
horizontal $11\frac{7}{8}$ inches.

Made vertical or
horizontal.

Wall Radiator Brackets,
pages 96-104.

Directions for ordering,
pages 184-185.

Telegraph Code, pages
203-212

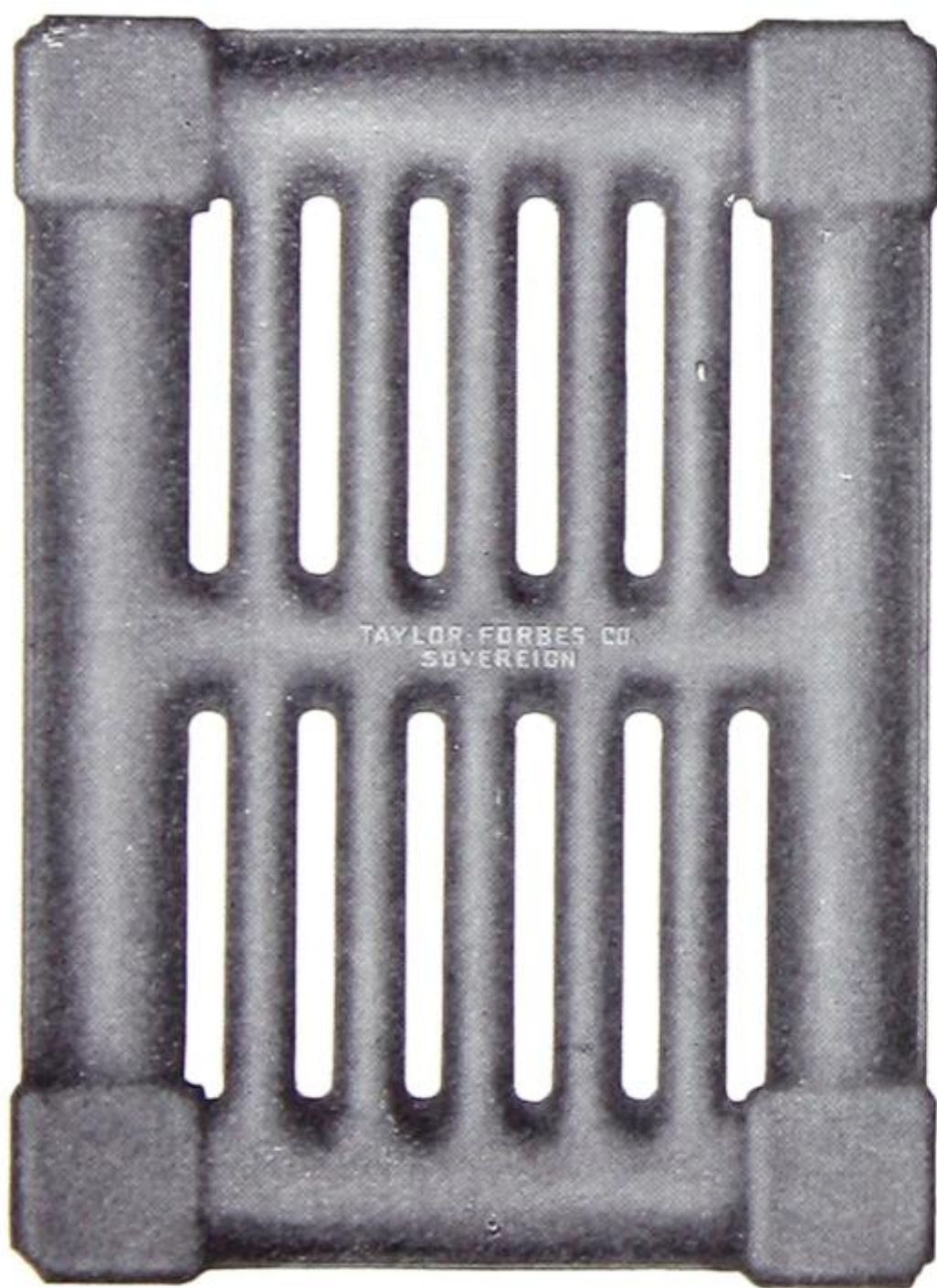


Fig. 99

Sovereign "Empress" Wall Radiators
For Steam or Water

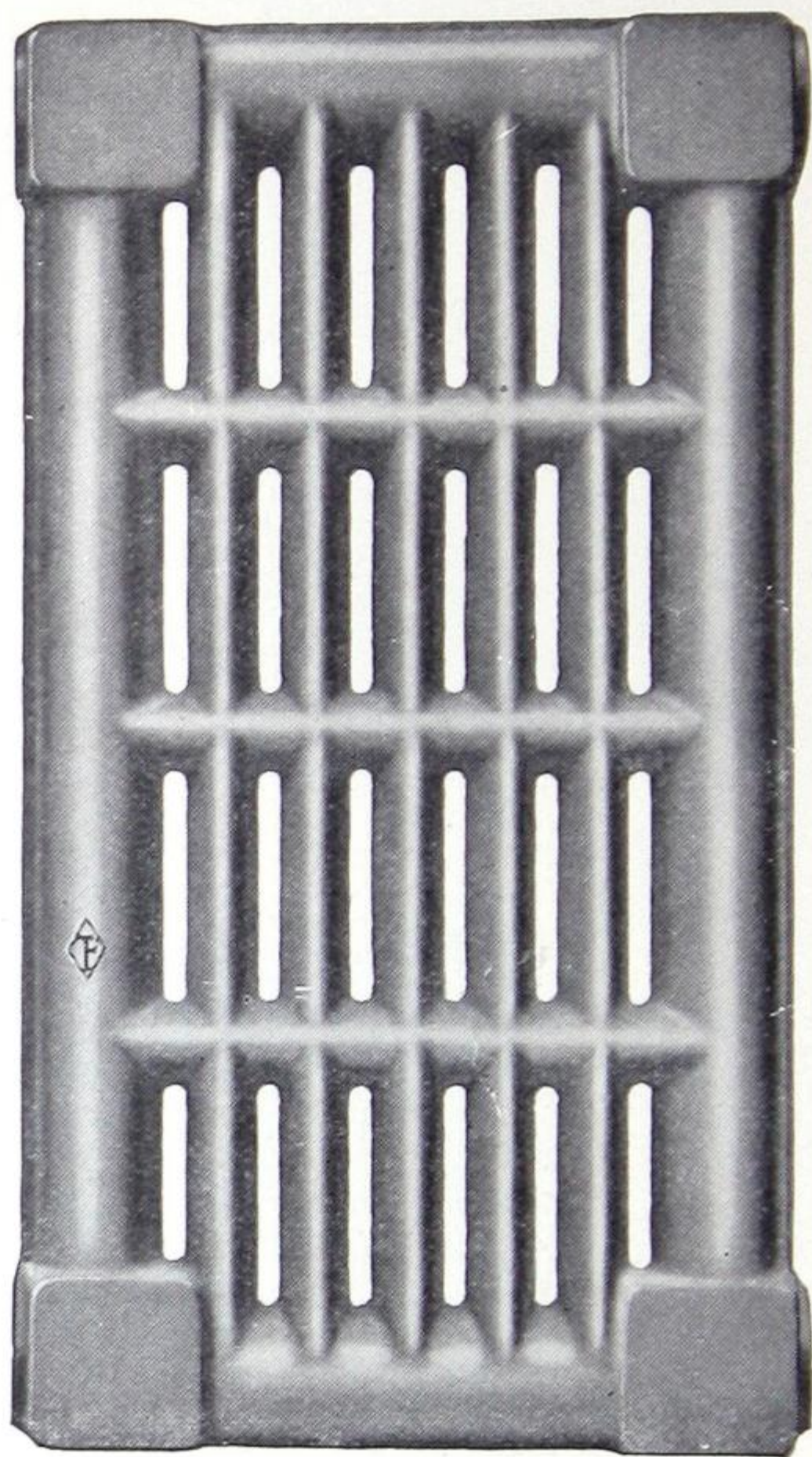


Fig. 100

12 Square Foot Section—15 inches wide by 28 inches long.

Thickness $3\frac{1}{2}$ inches.

Distance between centre of bottom and top openings 24 inches.

Made vertical only.

Wall Radiator Brackets, pages 96-104.

Directions for ordering, pages 184-185.

Telegraph Code, pages 203-212

Sovereign "Victor" Wall Radiators For Steam or Water

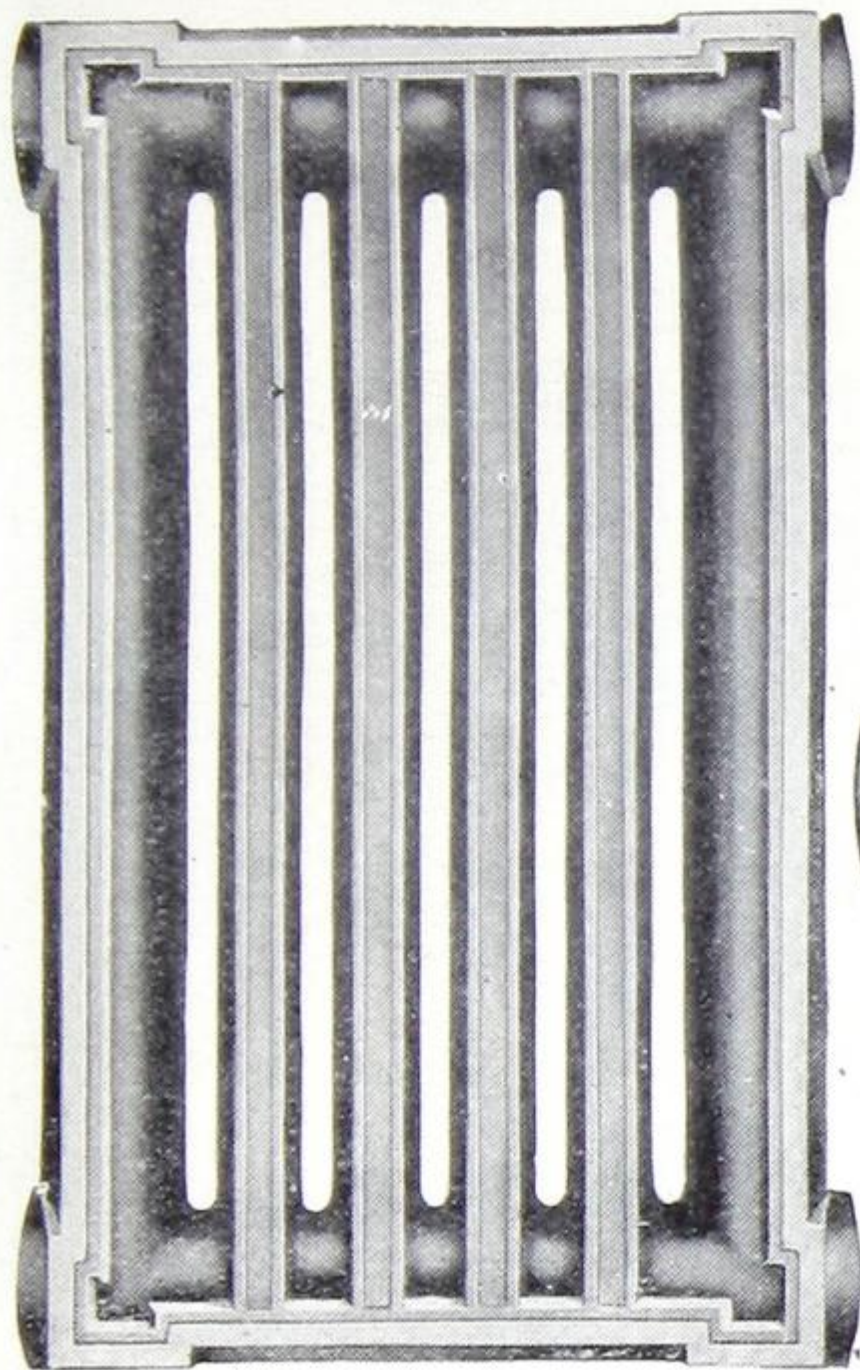


Fig. 89 A

7 Square Foot Section— $13\frac{5}{16}$ inches wide by $21\frac{7}{16}$ inches long.

Thickness $3\frac{1}{16}$ inches.

Distance between centre of bottom and top openings, $18\frac{17}{32}$ inches.

Made vertical only.

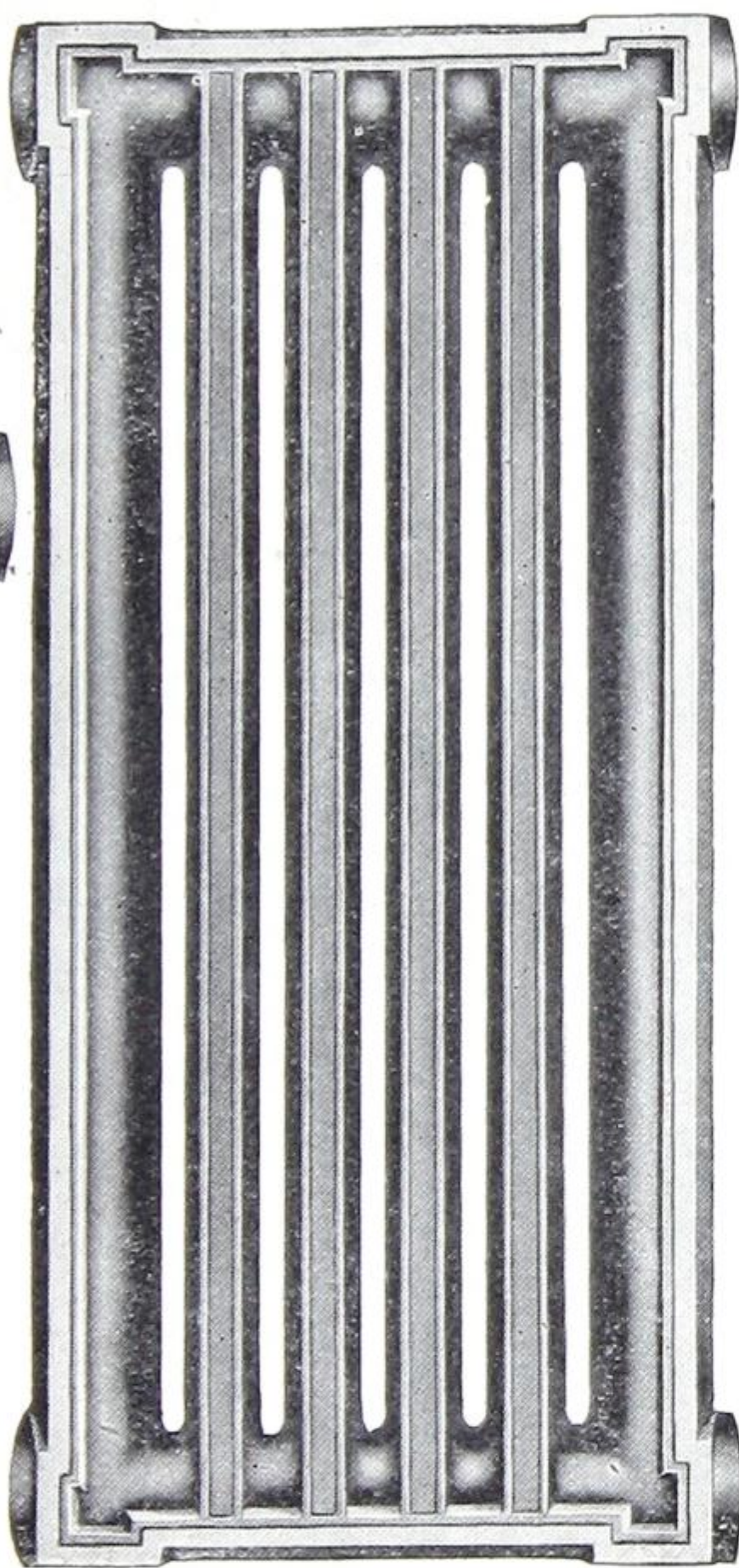


Fig. 89

9 Square Foot Section— $13\frac{5}{16}$ inches wide by $28\frac{1}{2}$ inches long.

Thickness $3\frac{1}{16}$ inches.

Distance between centre of bottom and top openings, $25\frac{19}{32}$ inches.

Made vertical only.

Wall Radiator Brackets, pages 96-104.
Directions for ordering, pages 184-185.
Telegraph Code, pages 203-212

“Sovereign” Wall Radiators

Horizontally Connected

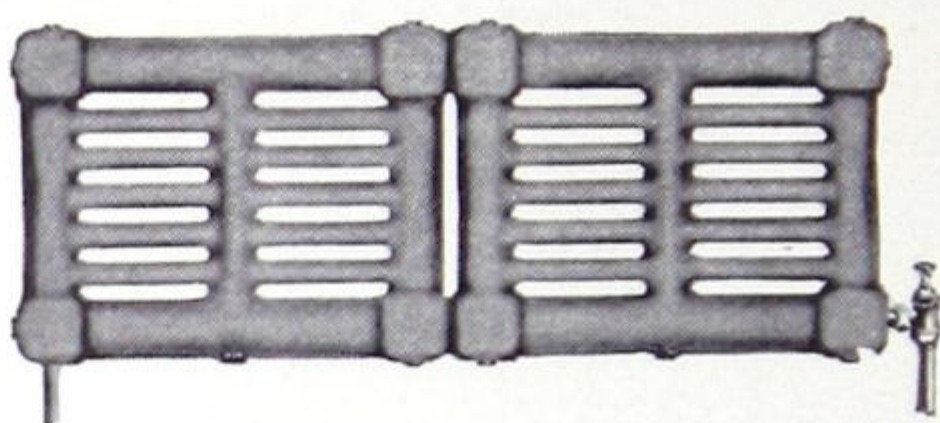


Fig. 21

VERTICALLY CONNECTED

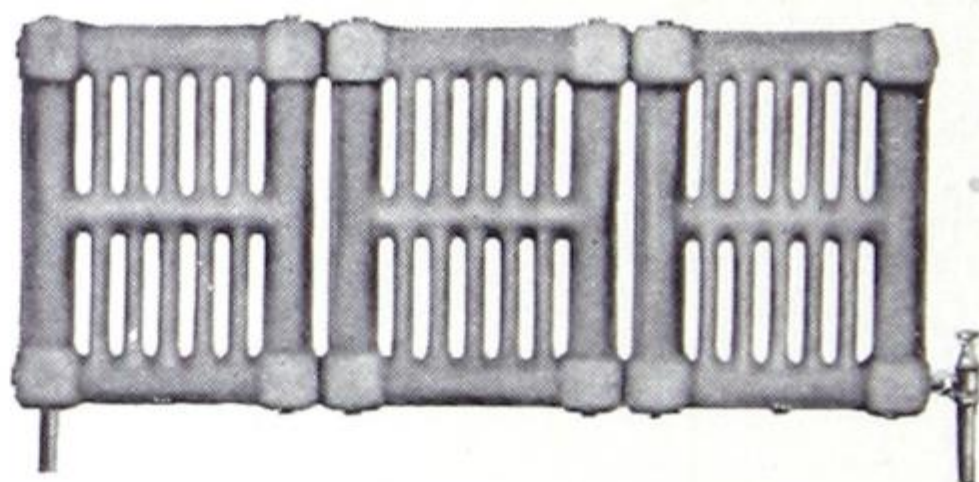
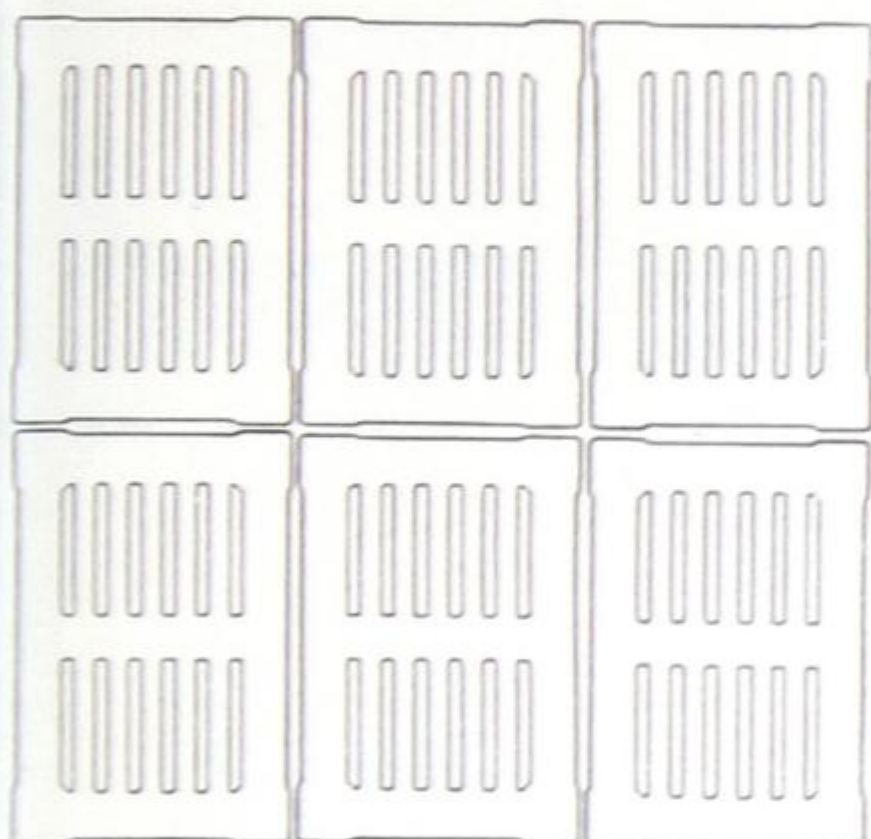


Fig. 22

“Sovereign” Wall Radiators can be made into any combination of stacks as shown on page 95.

“Sovereign” Wall Radiators



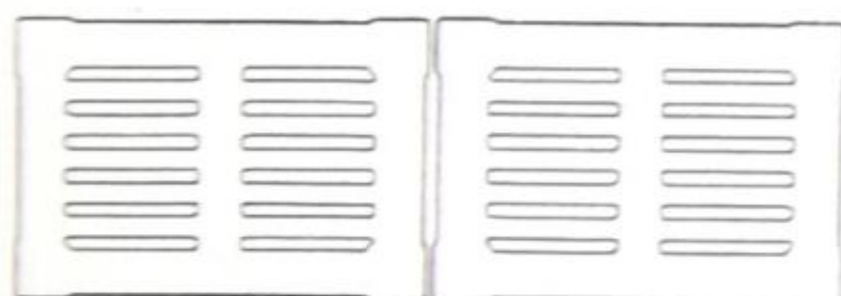
Style A

Vertically connected



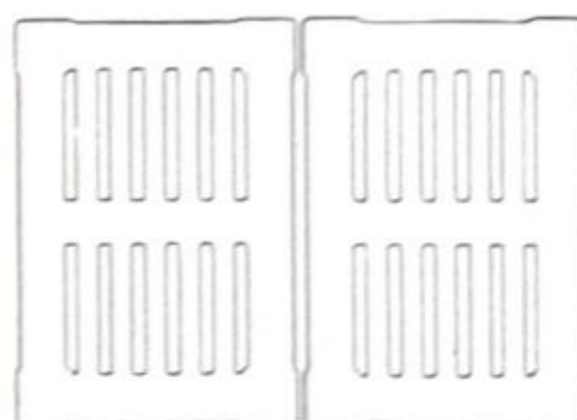
Style B

Horizontally connected



Style C

Horizontally connected



Style D

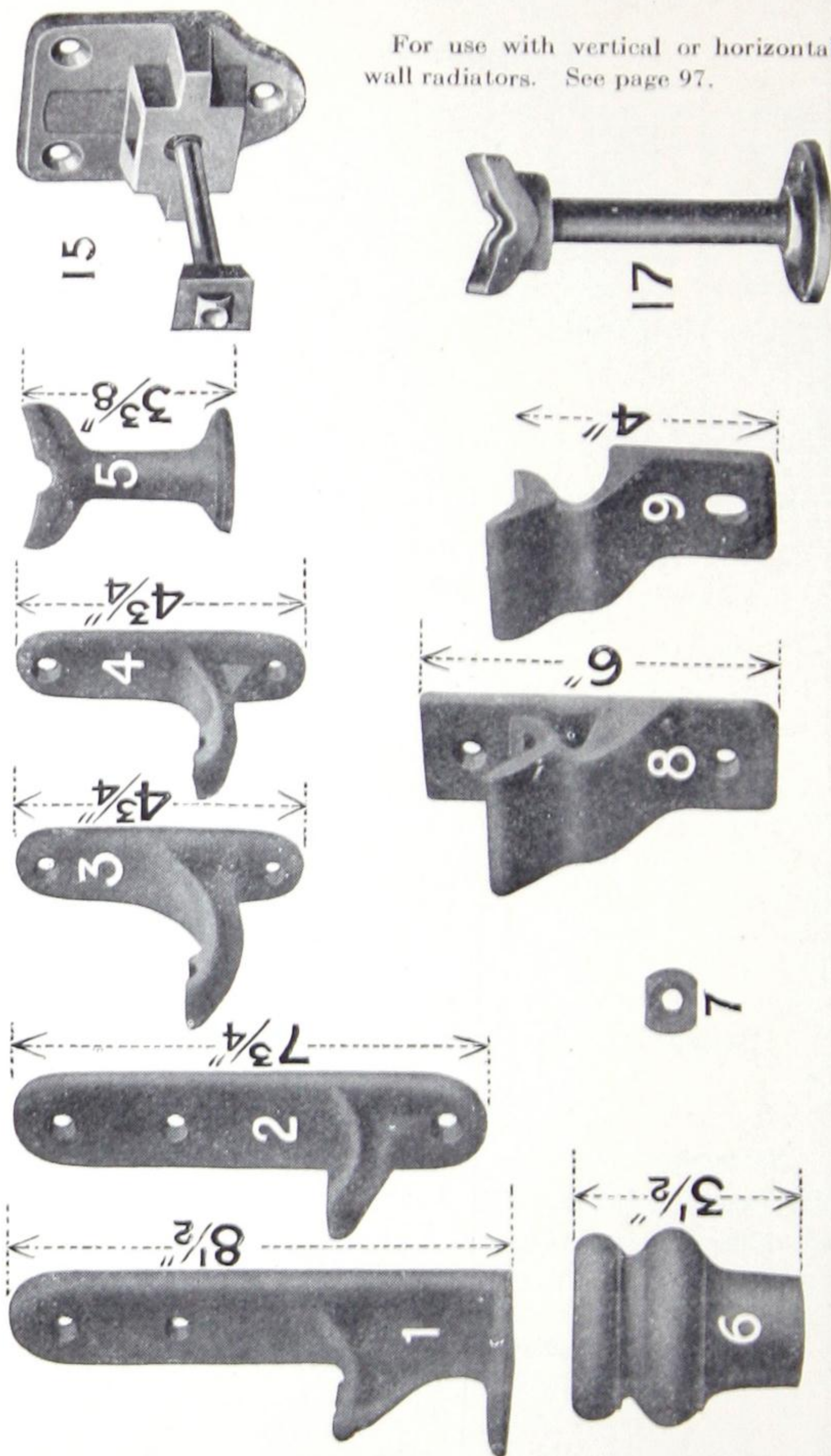
Vertically connected

Illustrations show general form of assembling “Sovereign” Wall Radiators. Radiators can be built to any number of sections to secure heating capacity desired.

Wall Radiator Brackets, pages 96-104.

"Sovereign" Radiator Brackets For Wall Radiators

For use with vertical or horizontal wall radiators. See page 97.



“Sovereign” Radiator Brackets

- No. 1—Bottom Bracket for Empress 6, 9 or 12 square foot walls.
No. 2—Bottom Bracket for Empress 6, 9 or 12 square foot walls.
No. 3—Top Bracket for Empress 6, 9 or 12 square foot walls.
No. 4—Top Bracket for Empress 6, 9 or 12 square foot walls.
No. 5—Bottom Bracket for Empress 6 or 9 square foot walls.
No. 6—Bottom Bracket for Empress or Victor 6, 7 or 9 square foot walls.
No. 7—Button for use with any style of bottom bracket.
No. 7—Button with screw for use with any style of bottom bracket.
No. 8—Bottom Bracket for Empress or Victor 6, 7, 9 or 12 square foot walls.
No. 9—Top Bracket for Empress or Victor 6, 7, 9 or 12 square foot walls.
No. 15—Top Bracket for Empress 12 square foot walls.
No. 17—Bottom Bracket for Empress 6, 9 or 12 square foot walls.

Wrought Iron Hangers

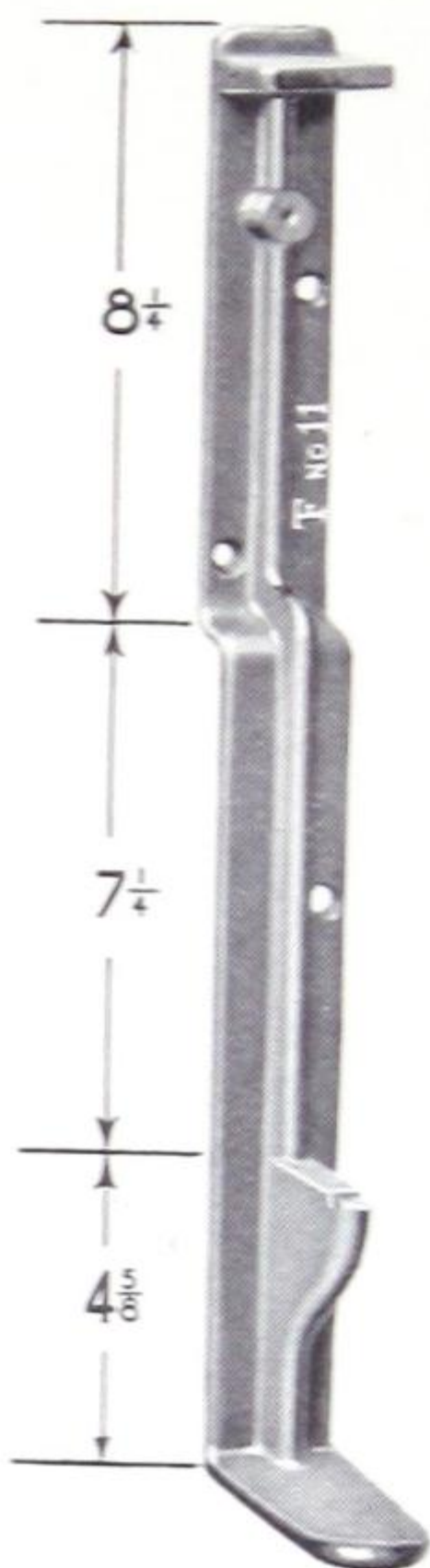
For Ceiling Radiators



- No. 12—Hanger for use with 6, 9 or 12 square foot wall Radiators.
No. 13—Hanger for use with 2, 3 or 4 Column Radiators.
No. 14—Hanger for use with Colonial Steam Radiators only.

"Sovereign" Radiator Brackets

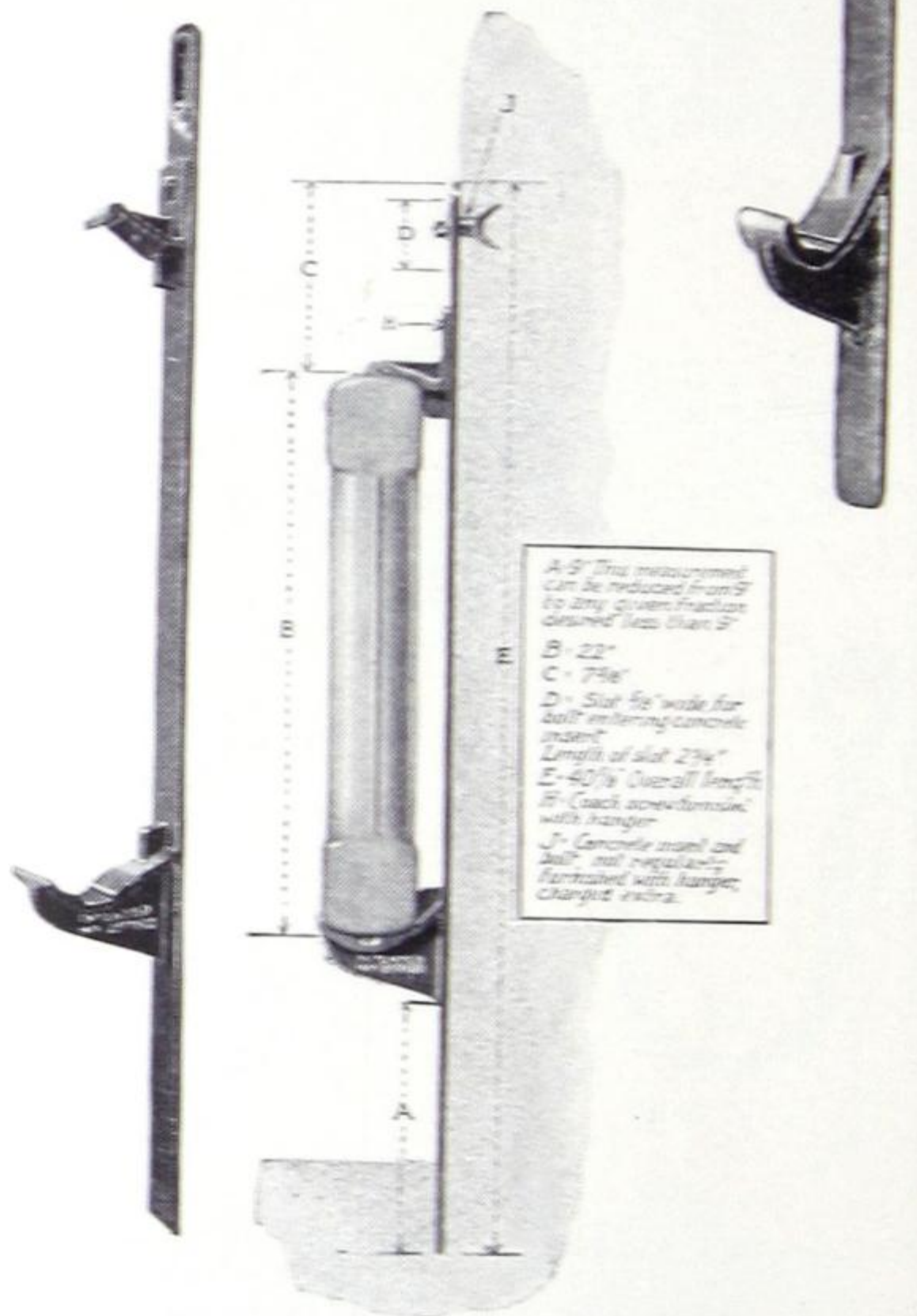
For Wall Radiators



For Empress 9
Square Foot
Vertical Walls
Non-adjustable

For Empress 12
Square Foot
Vertical Walls
Adjustable

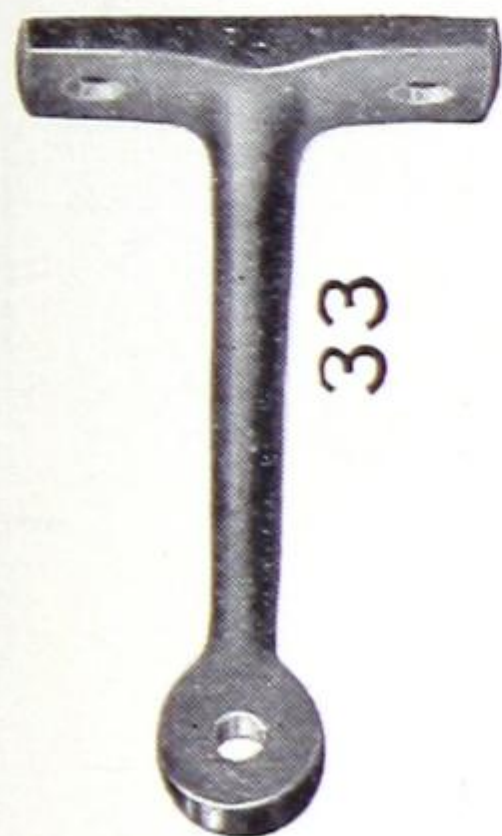
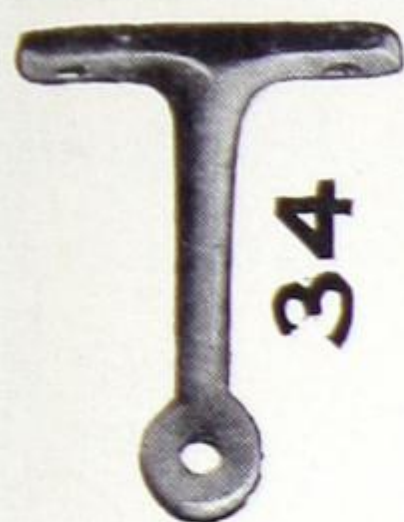
16



For Empress 9 Square Foot
Vertical Walls
Adjustable

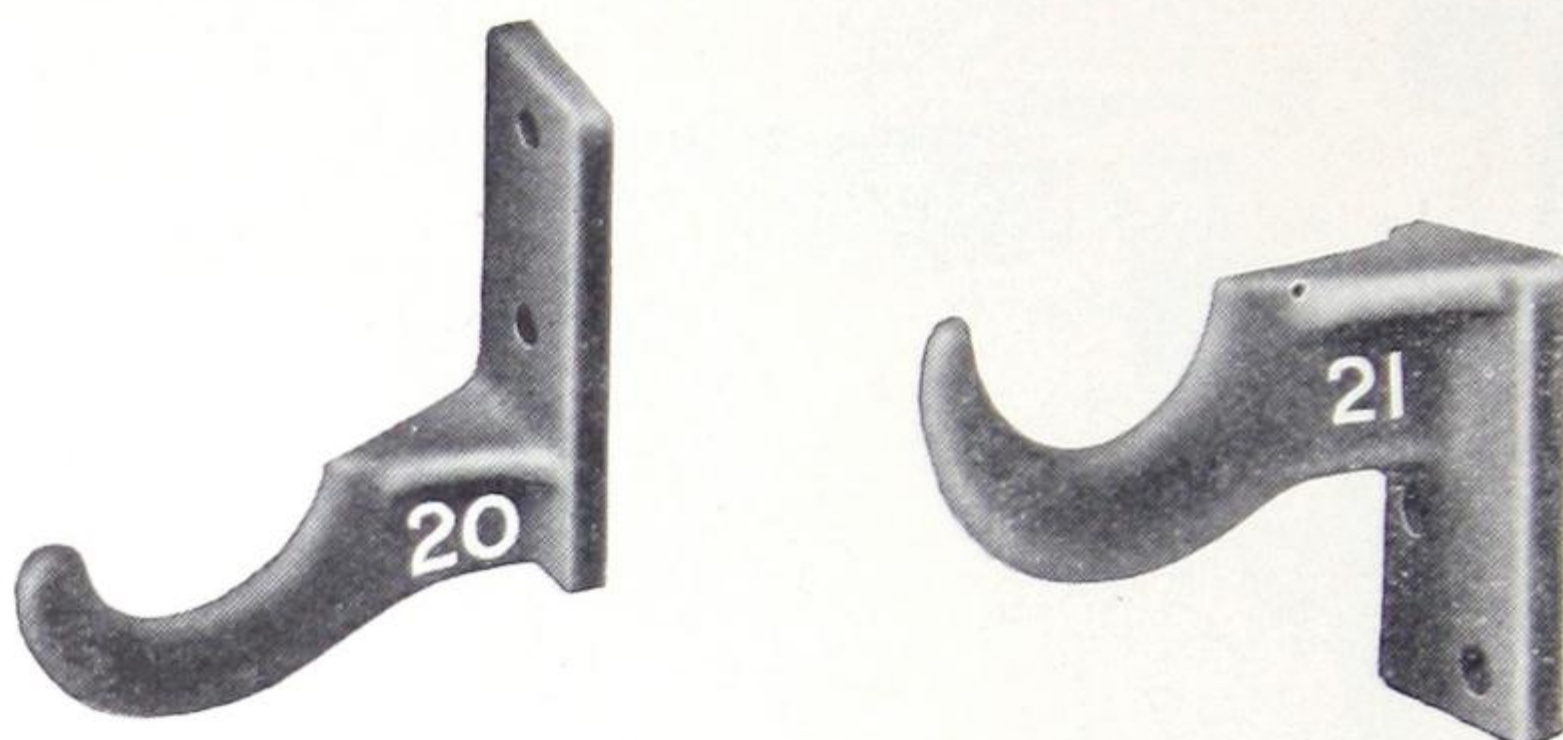
**“Sovereign” Concealed
Radiator Brackets**

**For 2, 3 and 4 Loop Steam Type
Radiators**



No. 30—Bottom Bracket for 2 loop Standard or Hospital Radiators.
No. 31—Top Bracket for 2 loop Standard or Hospital Radiators.
No. 32—Bottom Bracket for 4 loop Standard or Hospital Radiators.
No. 33—Top Bracket for 4 loop Standard or Hospital Radiators.
No. 34—Top Bracket for 3 loop Standard or Hospital Radiators.
Note—No. 34 Bracket is used with No. 32 bottom Bracket, for 3 loop Radiators.

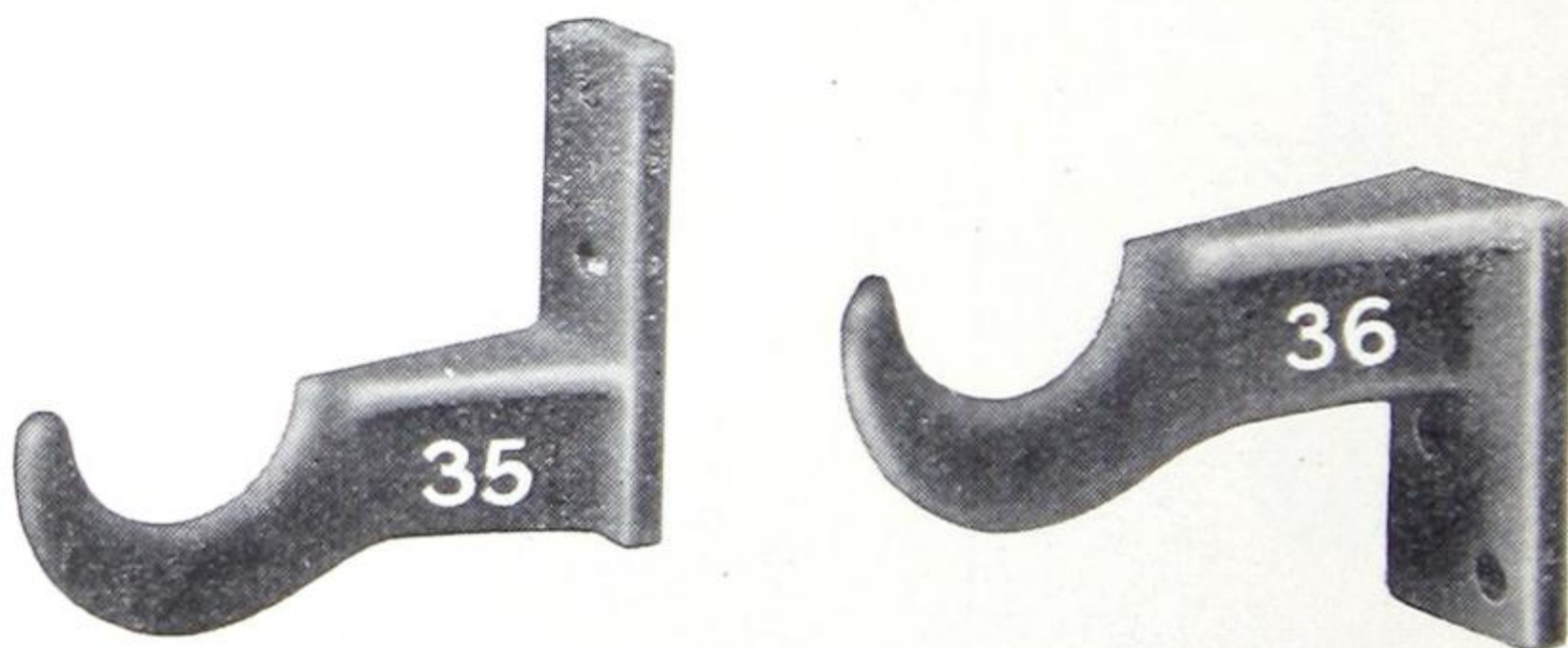
“Sovereign” Concealed Radiator Brackets
For 2, 3 and 4 Loop Water Type Radiators



- No. 20—Bottom Bracket for 2 loop Radiators.
No. 21—Top Bracket for 2 loop Radiators.
No. 22—Bottom Bracket for 3 loop Radiators.
No. 23—Top Bracket for 3 loop Radiators.
No. 24—Bottom Bracket for 4 loop Radiators.
No. 25—Top Bracket for 4 loop Radiators.

Nos. 20 to 25 Brackets will fit Standard or Hospital Radiators.

“Sovereign” Concealed Radiator Brackets
For 2 Loop Water Type Radiators ■



- No. 35—Bottom Bracket for 2 loop Radiators.
No. 36—Top Bracket for 2 loop Radiators.

Nos. 35 and 36 Brackets, allow the Radiator to sit 3 inches from the wall. They will fit Standard or Hospital Radiators.

“Sovereign” Concealed Radiator Brackets

For 2 Loop Radiators

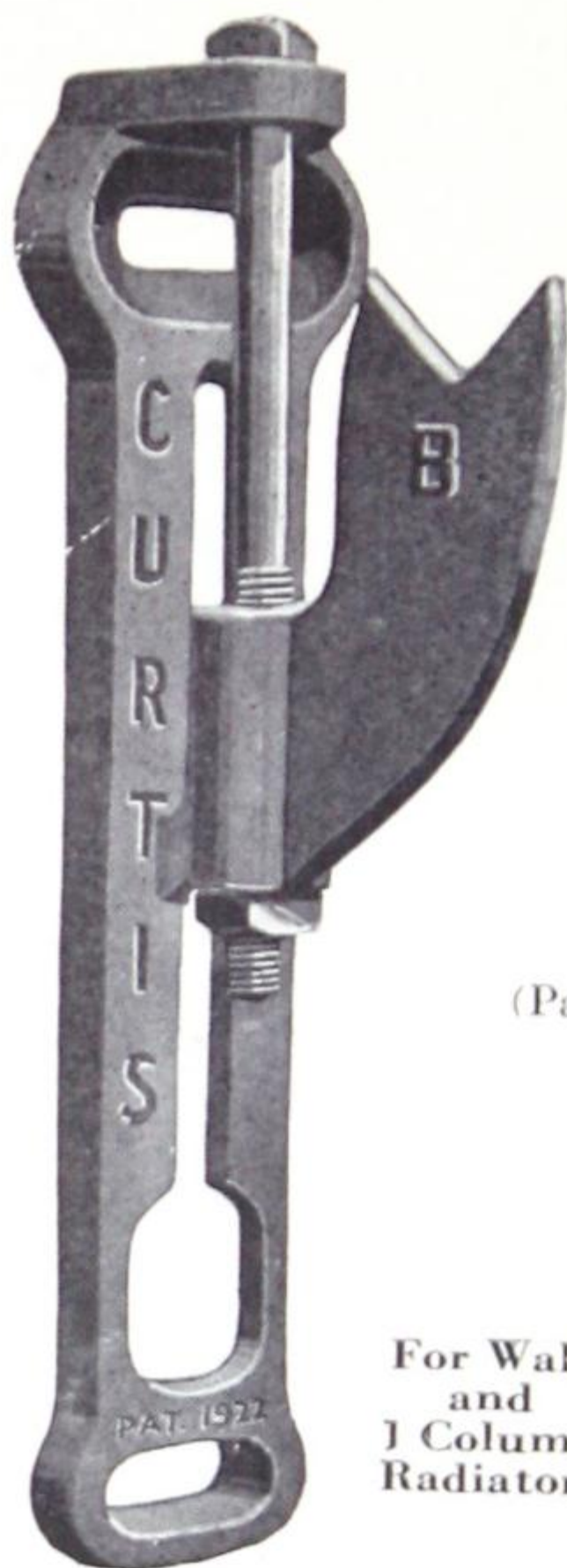


- No. 50—Bracket for 2 loop 45 inch Radiators.
- No. 51—Bracket for 2 loop 38½ inch Radiators.
- No. 52—Bracket for 2 loop 32½ inch Radiators.
- No. 53—Bracket for 2 loop 30 inch Radiators.
- No. 54—Bracket for 2 loop 26½ inch Radiators.
- No. 55—Bracket for 2 loop 23 inch Radiators.
- No. 56—Bracket for 2 loop 20½ inch Radiators.

Nos. 50 to 56 Brackets are extra strongly made of cast iron, designed so as to be concealed in the concrete wall.

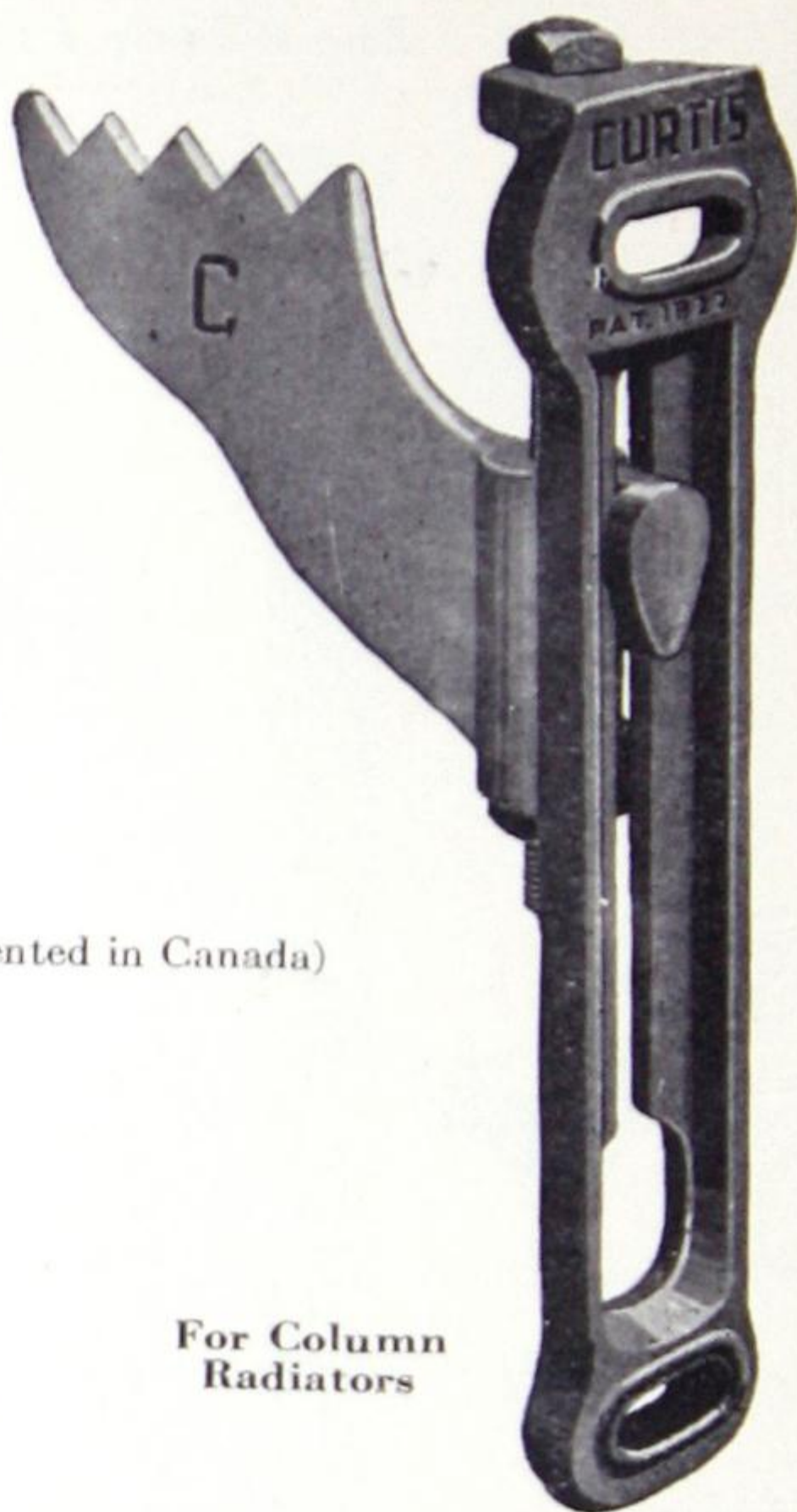
"Curtis" Concealed and Adjustable Radiator Brackets

For Wall and Column Radiators



For Wall
and
1 Column
Radiators

(Patented in Canada)



For Column
Radiators

Number of Blade	Type of Radiation Used For	Distance from Wall to Centre of Radiator Inches
C	2, 3 or 4 Column	1-3
9E	Empress 9 Square Foot Walls	4¼
12E	Empress 12 Square Foot Walls	4½
B	Victor 9 Square Foot Walls and 1 Column Radiators	3¼
BX	Victor 9 Square Foot Walls and 1 Column Radiators	4¼

The "Curtis" Radiator Bracket is strongly made of malleable iron.
Specify blade required.

See pages 103-104 for description and installation.

“Curtis” Radiator Brackets

Concealed and Adjustable

The Curtis Hanger suspends the Radiator from a point near the top and a proper distance from the wall with the weight properly distributed.

By this method of hanging radiation at the top, the radiator is firmly held without a top brace, the entire hanger being concealed between the sections, the lower part of the radiator being held fast in place by the pipe connection. In some instances where the pipe connection is not considered rigid enough for bracing at the bottom, a concealed lag screw is used. (See cuts 1 and 3.) With the lengthening of this brace, bottom of radiator may be set at any distance from the wall.

The Curtis is the only hanger on the market that can be used for installing all types of direct radiation, including wall radiation, without having special fittings, and offers the Architect, Heating Contractor and Owner the most efficient hanger available.

Construction and Installation

Part “A” illustrates the bearing plate ($1\frac{3}{4}$ x 10 inches); a hole, top and bottom, is provided for lag-screwing or bolting to wall. The holes for bolting hanger to the wall are made to allow 1 inch lateral adjustment of hanger on the wall. Same bearing plate is used for either wall, or column radiation hangers. This plate does not require wooden strips with which to hang radiators.

The hanger blade is inserted into the bearing plate through a wide opening at the bottom of the plate and slides up and down nearly the full length of the plate, in a small groove. Blade is held in the groove by ears, at back of the blade. The ears serve as a guide for the hanger only, and are not required to hold radiator weight. The weight of the radiator is held by bolt (part “D”) with a 3-inch thread and nut. Vertical adjustment is made by turning head of the bolt.

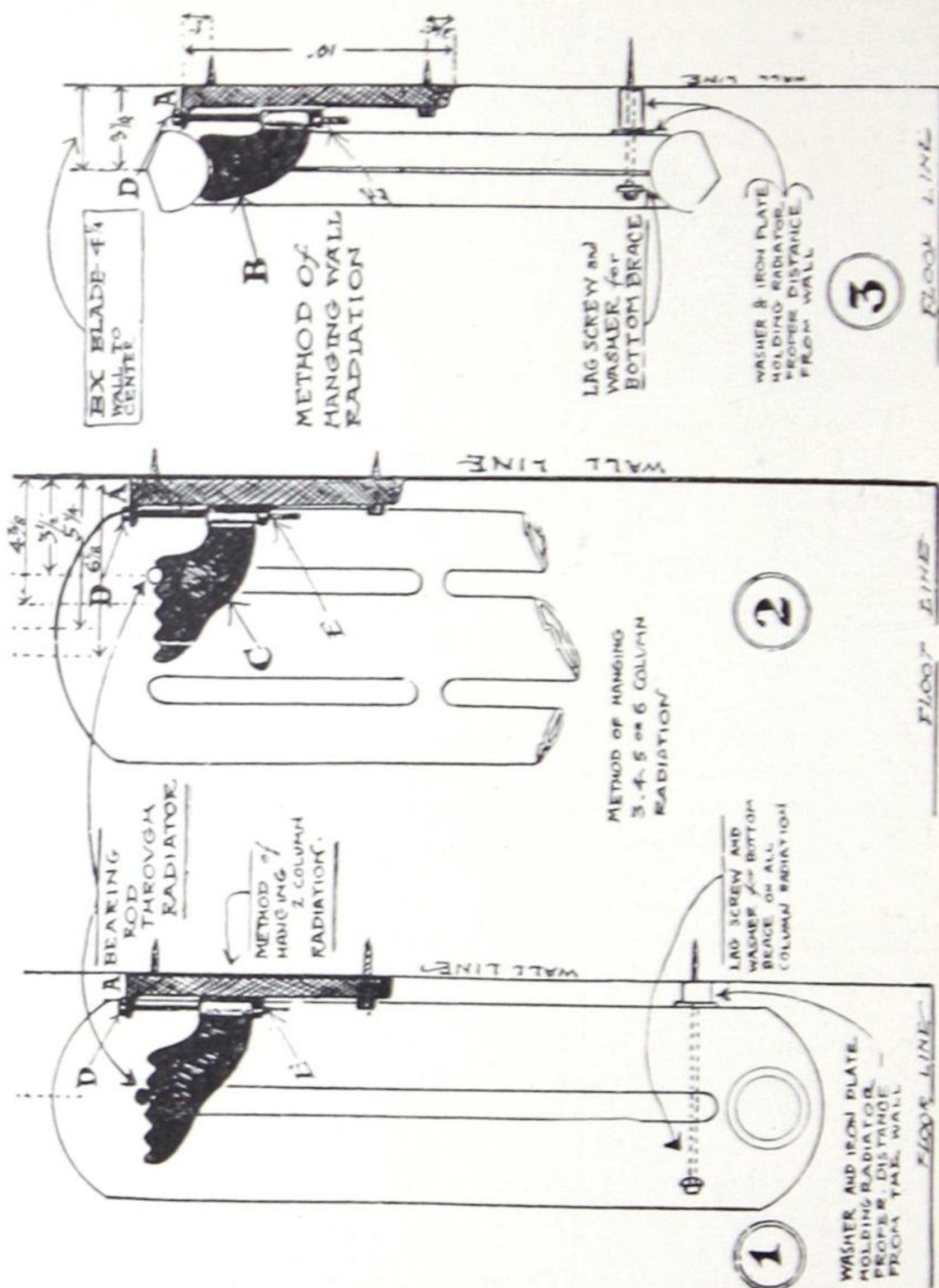
The $\frac{3}{4}$ x 6 inch bolt is dropped through a hole in the projection at top of the wall plate, down through the hanger blade. The nut is put on, and held from turning by a shoulder at the base of the blade (indicated at point “E”).

Expansion and contraction is adequately taken care of by allowing movement sideways, of the hanger blade where inserted in the groove of the wall plate. Strength tests have proven the Curtis Hanger to meet every requirement for the heaviest radiator.

Any other information and details furnished on application.

"Curtis" Radiator Hangers

Illustrating Method of Installing



“Sovereign” Bath Room Wall Radiators

Vertical or Horizontal For Steam or Water

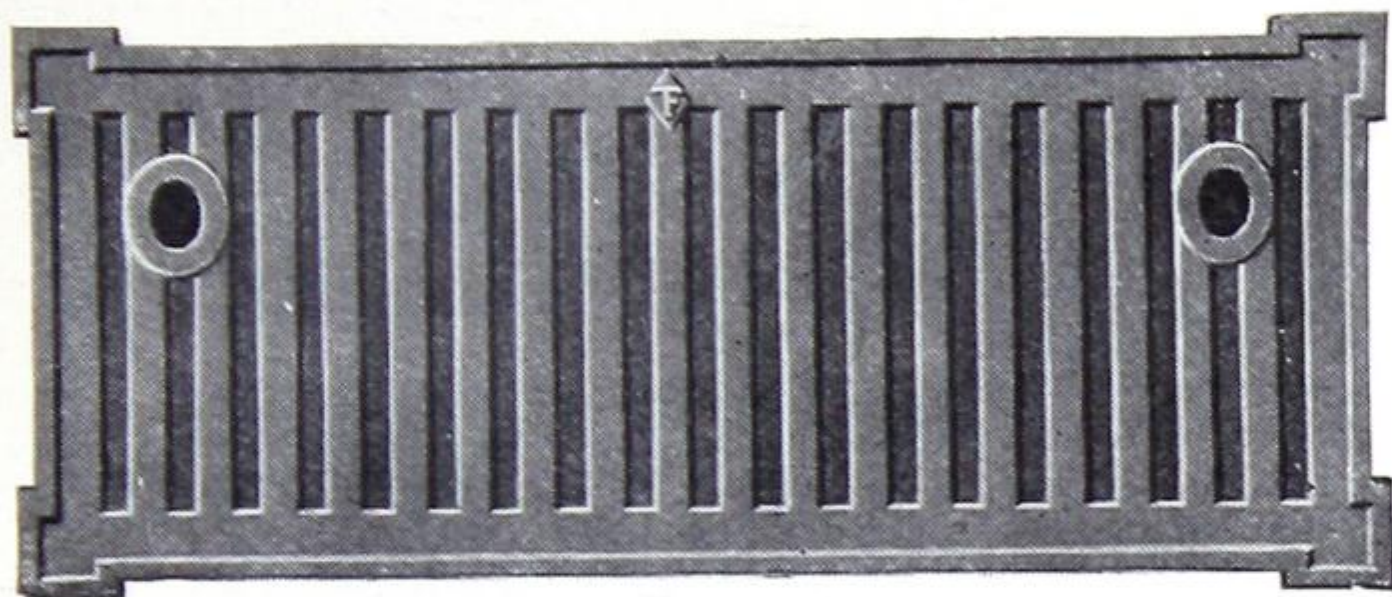


Fig. 67

Length $20\frac{1}{2}$ inches

Width $8\frac{1}{2}$ inches

Thickness $1\frac{1}{16}$ inches

$3\frac{1}{2}$ square feet per section.

“Monarch” Wall Radiators

For Steamships and Small Apartments

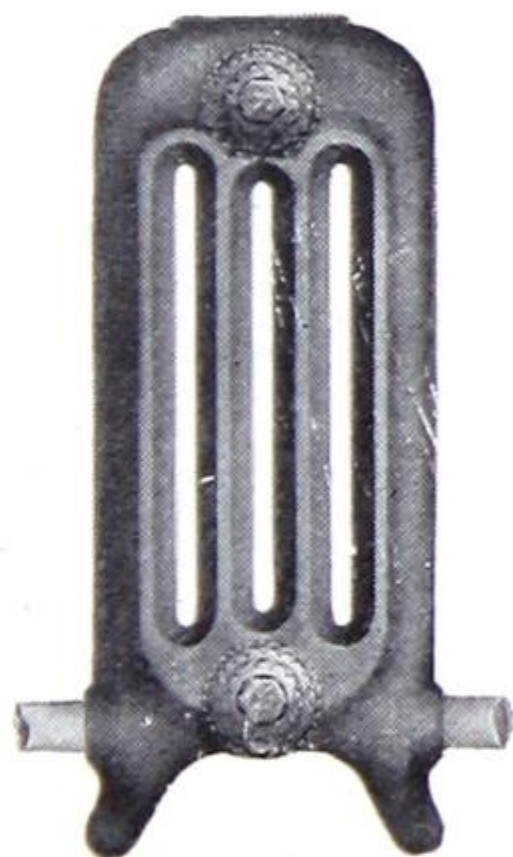


Fig. 27

Any height from $16\frac{1}{2}$ to $42\frac{1}{2}$ inches.

Floor Dampers

For Direct-Indirect Radiators

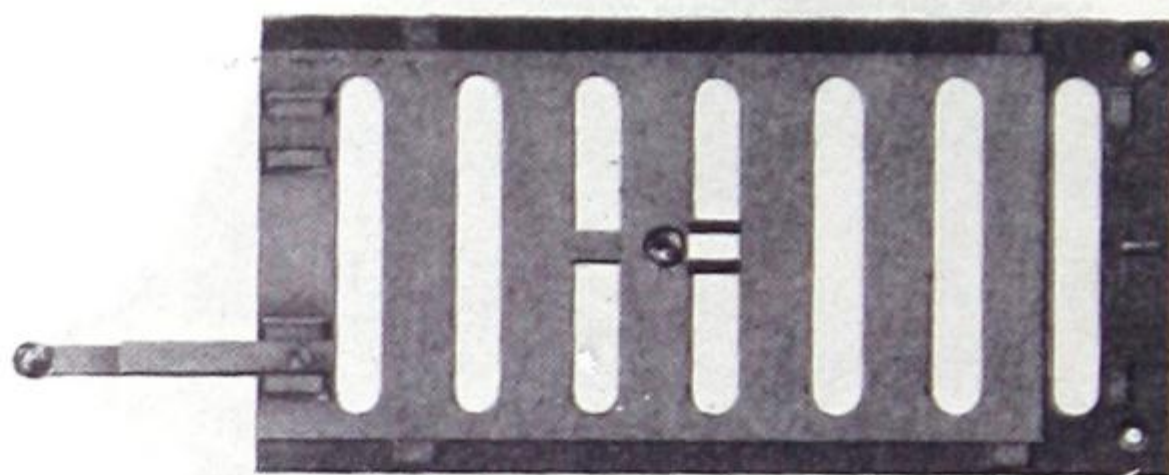


Fig. 28

For use only where air is taken in through the floor.

DIMENSIONS OF DAMPERS

Size	Size of Damper		For 4 Loop Monarch Radiators	For 2 Loop Colonial Radiators
	Width Inches	Length Inches		
A	5½	6½	4 and 5 Sections	4 and 5 Sections
B	5½	11	6 and 7 Sections	6, 7 and 8 Sections
C	5½	18	8 and 9 Sections	9 and 10 Sections
D	5½	28	10 and 11 Sections	11 to 15 Sections
E	5½	36	12 and 13 Sections	16 to 18 Sections

Outside Wall Boxes for Direct-Indirect Radiators

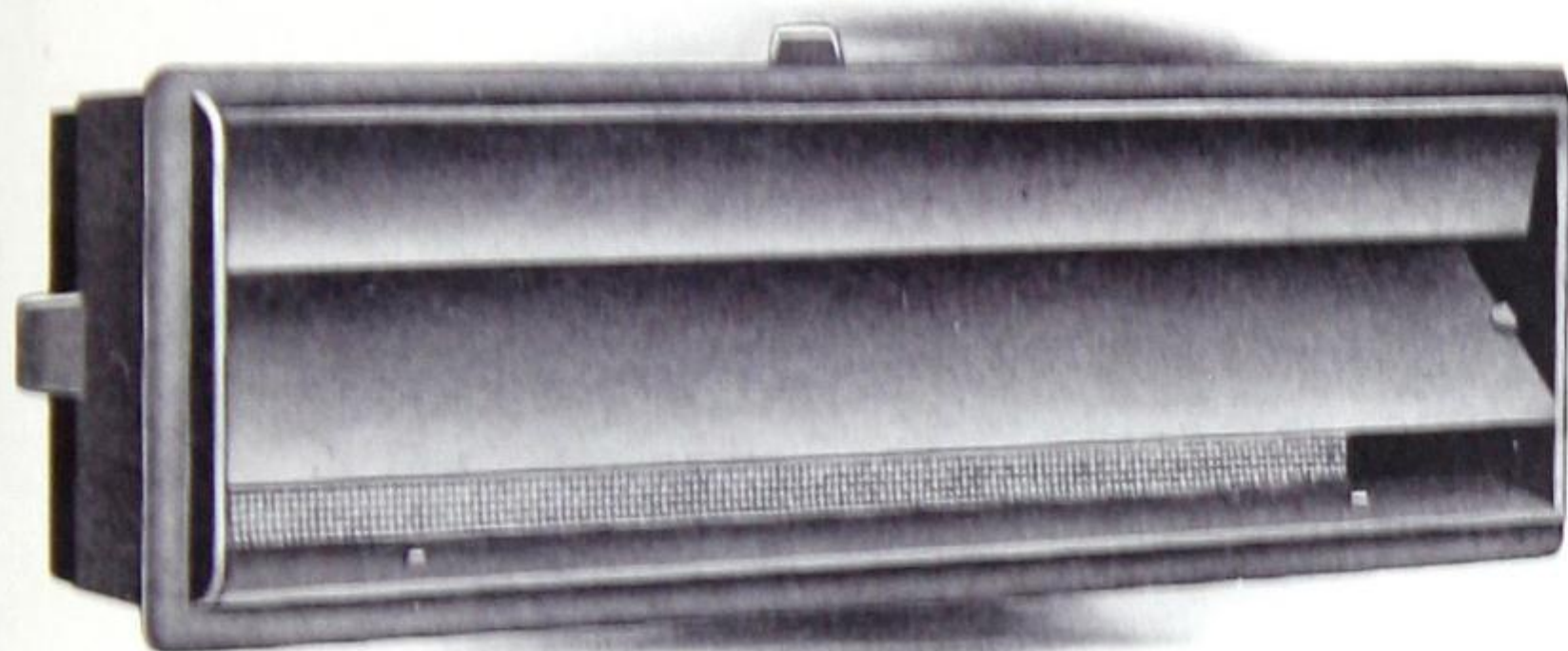


Fig. 69

Wall boxes are strongly made. The baffle plates and brass wire screen are so arranged as to make them storm-proof. Outside measurement, $5 \times 17\frac{1}{2}$ inches, to conform with brick work, outside measurement of flange for iron collar or sleeve, $4\frac{3}{4} \times 17$ inches.

Direct-Indirect Radiator with Adjustable Box Base

For Steam or Water

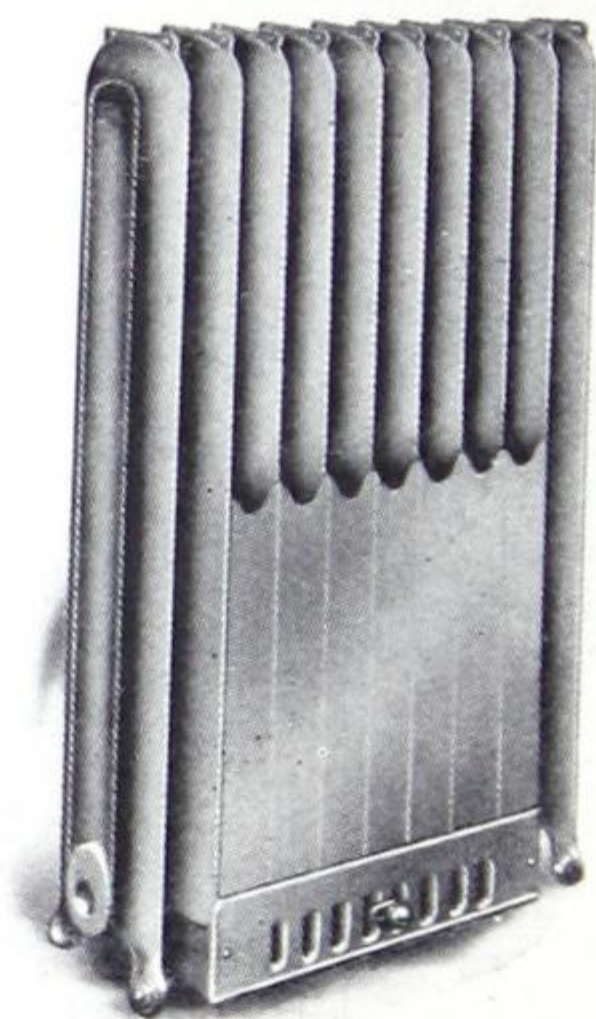


Fig. A 7
Front View

This new style with panel sides has been adopted because of its sanitary construction, and is fitted with loose box bases.

For box bases, see page 109.

Adjustable Box Bases for Direct-Indirect Radiators

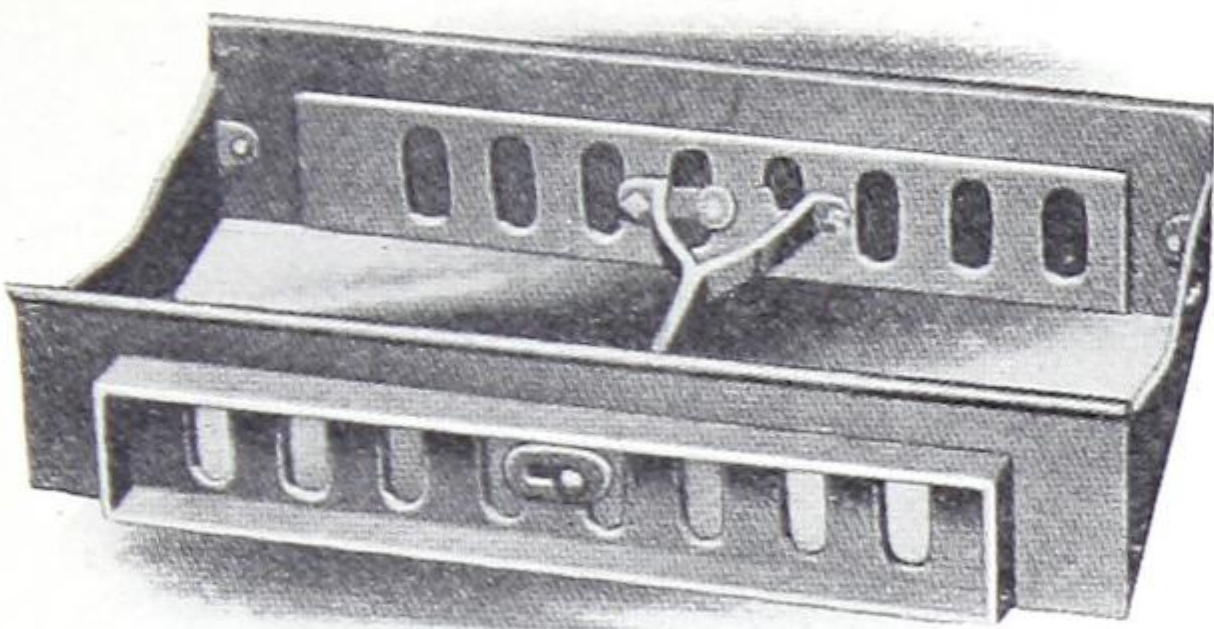


Fig. 70
Back View

As will be seen by above illustration the dampers provided with this box base are arranged so that when the back air inlet is opened the damper slide in the front of base is automatically closed, and vice versa. Where required we can supply these bases with floor inlet dampers arranged to operate in the same manner.

2 AND 3 COLUMN BASES			4 COLUMN BASES		
No. of Base Sections	Size of Collar for Back Air Inlet. Inches	Size of Floor Inlet Damper Inches	No. of Base Sections	Size of Collar for Back Air Inlet. Inches	Size of Floor Inlet Damper Inches
5	2¾x5	5½x6½	5	2¾x9	5½x6½
6	2¾x9	5½x6½	6	2¾x14	5½x11
7	2¾x9	5½x11	7	2¾x14	5½x11
8	2¾x9	5½x11	8	2¾x14	5½x18
9	2¾x9	5½x11	9	2¾x14	5½x18
10	2¾x14	5½x11	10	2¾x19	5½x28½
11	2¾x14	5½x18	11	2¾x19	5½x28½
12	2¾x14	5½x18	12	2¾x19	5½x36½
13	2¾x14	5½x18	13	2¾x19	5½x36½
14	2¾x14	5½x18	14	2¾x19	5½x44¾
15	2¾x19	5½x28½	15	2¾x23	5½x44¾

Note—Where floor inlet dampers are required, it should be specially stated when ordering. Back inlet dampers will be furnished unless otherwise specified.

Flue Window Radiators

Square Top

For Steam or Water

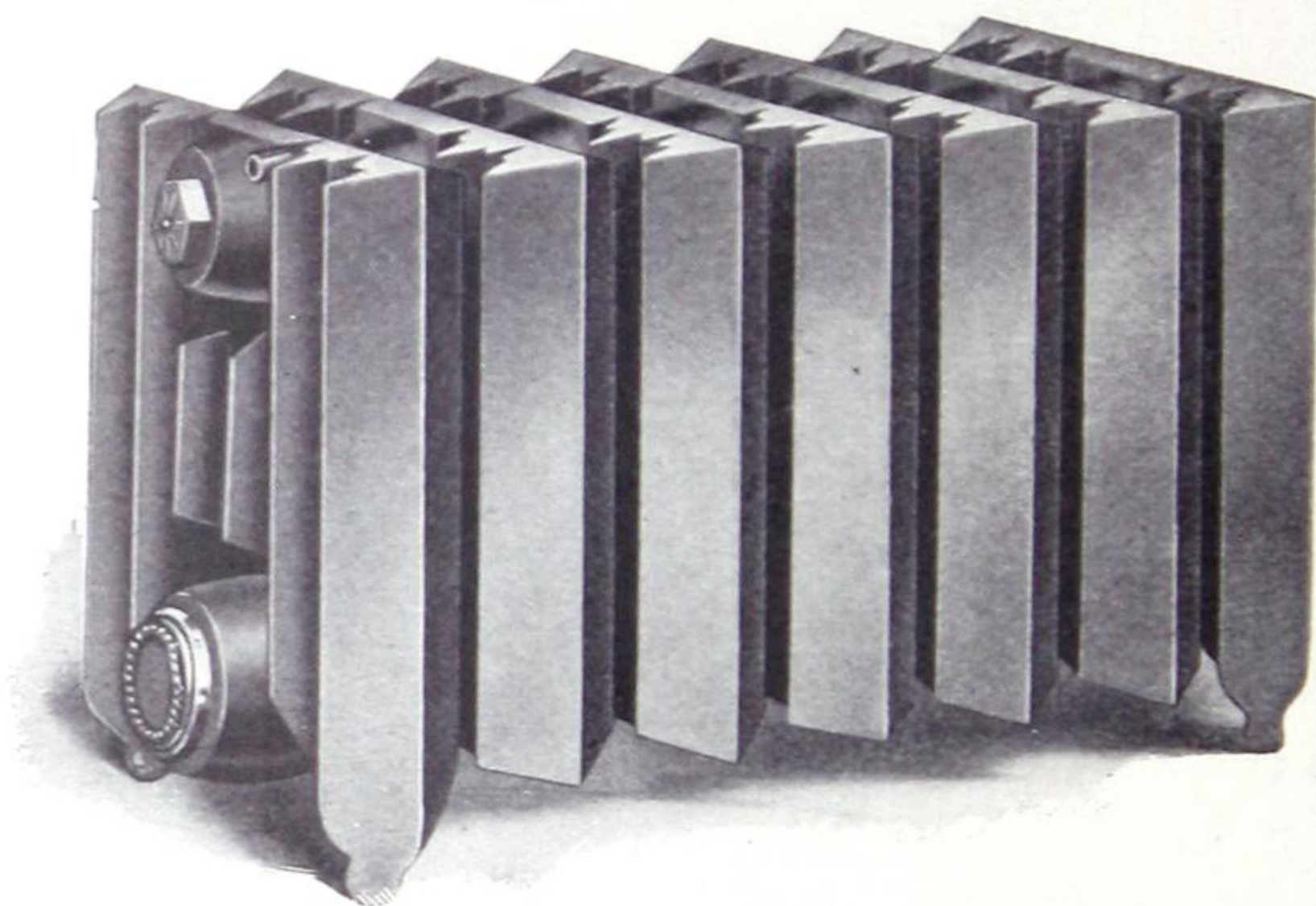


Fig. 68

Width of section, $12\frac{3}{4}$ inches Width of leg, $12\frac{3}{4}$ inches

Heating surface, page 111. Roughing in measurements, pages 75-77

Flue Window Radiators

5 Loops Wide

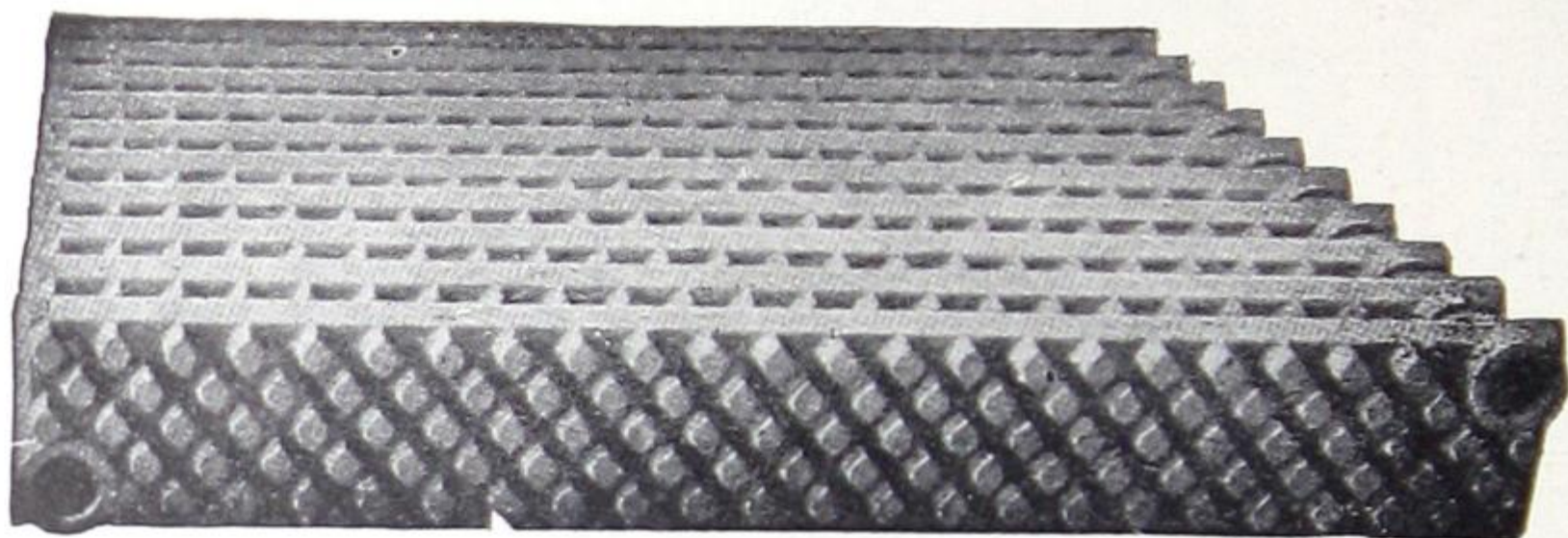
No. of Sect's.	* Length in Inches Overall	Heating Surface				
		20" in Height	18" in. Height	16" in. Height	14" in Height	13" in Height
		6 Sq. Ft. per Section	5 $\frac{1}{3}$ Sq. Ft. per Section	4 $\frac{2}{3}$ Sq. Ft. per Section	4 Sq. Ft. per Section	3 $\frac{2}{3}$ Sq. Ft. per Section
2	7	12	10 $\frac{2}{3}$	9 $\frac{1}{3}$	8	7 $\frac{1}{3}$
3	10	18	16	14	12	11
4	13	24	21 $\frac{1}{3}$	18 $\frac{2}{3}$	16	14 $\frac{2}{3}$
5	16	30	26 $\frac{2}{3}$	23 $\frac{1}{3}$	20	18 $\frac{1}{3}$
6	19	36	32	28	24	22
7	22	42	37 $\frac{1}{3}$	32 $\frac{2}{3}$	28	25 $\frac{2}{3}$
8	25	48	42 $\frac{2}{3}$	37 $\frac{1}{3}$	32	29 $\frac{1}{3}$
9	28	54	48	42	36	33
10	31	60	53 $\frac{1}{3}$	46 $\frac{2}{3}$	40	36 $\frac{2}{3}$
11	34	66	58 $\frac{2}{3}$	51 $\frac{1}{3}$	44	40 $\frac{1}{3}$
12	37	72	64	56	48	44
13	40	78	69 $\frac{1}{3}$	60 $\frac{2}{3}$	52	47 $\frac{2}{3}$
14	43	84	74 $\frac{2}{3}$	65 $\frac{1}{3}$	56	51 $\frac{1}{3}$
15	46	90	80	70	60	55
16	49	96	85 $\frac{1}{3}$	74 $\frac{2}{3}$	64	58 $\frac{2}{3}$
17	52	102	90 $\frac{2}{3}$	79 $\frac{1}{3}$	68	62 $\frac{1}{3}$
18	55	108	96	84	72	66
19	58	114	101 $\frac{1}{3}$	88 $\frac{2}{3}$	76	69 $\frac{2}{3}$
20	61	120	106 $\frac{2}{3}$	93 $\frac{1}{3}$	80	73 $\frac{1}{3}$
21	64	126	112	98	84	77
22	67	132	117 $\frac{1}{3}$	102 $\frac{2}{3}$	88	80 $\frac{2}{3}$
23	70	138	122 $\frac{2}{3}$	107 $\frac{1}{3}$	92	84 $\frac{1}{3}$
24	73	144	128	112	96	88
25	76	150	133 $\frac{1}{3}$	116 $\frac{2}{3}$	100	91 $\frac{2}{3}$

* Length overall includes $\frac{1}{2}$ inch for each plug or bushing.

“Sovereign” Cast Iron Blast Heaters

For Steam or Water

For Fan and Blower Work



Showing group of ten sections

Regular type



Showing a single section

Narrow type.



Showing a section cut through centre

Fig. 103

“Sovereign” Cast Iron Blast Heaters—Con. **For Steam or Water**

Narrow Section—Ratings and Free Areas
 Narrow 40" Section—7.5 sq. ft. Height, $40\frac{15}{16}$ ". Width, $6\frac{3}{4}$ "

No. of sect's. in Stack	Sq. Ft. of Heating Surface	5 $\frac{3}{8}$ " Cent. of Sec's		5" Cent. of Sec's		4 $\frac{5}{8}$ " Cent. of Sec's	
		52% of Face		Stand .44% of Face		37% of Face	
		Net Air Space in Sq. Ft.	†Width of Stack in Inches	Net Air Space in Sq. Ft.	†Width of Stack in Inches	Net Air Space in Sq. Ft.	Width of Stack in Inches
10	75.0	7.29	54	6.20	50	5.25	46
11	82.5	8.02	59	6.82	55	5.77	51
12	90.0	8.74	65	7.44	60	6.30	55
13	97.5	9.47	70	8.06	65	6.82	60
14	105.0	10.19	75	8.68	70	7.35	65
15	112.5	10.91	81	9.30	75	7.87	69
16	120.0	11.64	86	9.92	80	8.40	74
17	127.5	12.36	91	10.54	85	8.92	79
18	135.0	13.09	97	11.16	90	9.45	83
19	142.5	13.82	102	11.78	95	9.97	88
20	150.0	14.54	108	12.40	100	10.50	92
21	157.5	15.26	113	13.02	105	11.02	97
22	165.0	15.98	118	13.64	110	11.55	102
23	172.5	16.71	124	14.26	115	12.07	106
24	180.0	17.43	129	14.88	120	12.60	111

Narrow 50" Section—9.5 sq. ft. Height, $50\frac{29}{32}$ ". Width, $6\frac{3}{4}$ "

		5 $\frac{3}{8}$ " Centres		5" Centres		4 $\frac{5}{8}$ " Centres	
10	95.0	9.05	54	7.68	50	6.50	46
11	104.5	9.95	59	8.45	55	7.15	51
12	114.0	10.85	65	9.22	60	7.80	55
13	123.5	11.75	70	9.99	65	8.45	60
14	133.0	12.65	75	10.76	70	9.10	65
15	142.5	13.55	81	11.53	75	9.75	69
16	152.0	14.45	86	12.30	80	10.40	74
17	161.5	15.35	91	13.07	85	11.05	79
18	171.0	16.25	97	13.84	90	11.70	83
19	180.5	17.15	102	14.59	95	12.35	88
20	190.0	18.05	108	15.36	100	13.00	92
21	199.5	18.95	113	16.13	105	13.65	97
22	209.0	19.85	118	16.90	110	14.30	102
23	218.5	20.75	124	17.67	115	14.95	106
24	228.0	21.65	129	18.44	120	15.60	111

Narrow 60" Section—11 sq. ft. Height, $60\frac{11}{16}$ ". Width, $6\frac{3}{4}$ ".

10	110.0	10.85	54	9.21	50	7.81	46
11	121.0	11.93	59	10.13	55	8.59	51
12	132.0	13.00	65	11.05	60	9.37	55
13	143.0	14.08	70	11.97	65	10.15	60
14	154.0	15.15	75	12.89	70	10.93	65
15	165.0	16.23	81	13.81	75	11.71	69
16	176.0	17.31	86	14.73	80	12.49	74
17	187.0	18.39	91	15.65	85	13.27	79
18	198.0	19.46	97	16.57	90	14.05	83
19	209.0	20.54	102	17.50	95	14.83	88
20	220.0	21.62	108	18.42	100	15.61	92
21	231.0	22.70	113	19.34	105	16.39	97
22	242.0	23.78	118	20.26	110	17.17	102
23	253.0	24.85	124	21.18	115	17.95	106
24	264.0	25.93	129	22.10	120	18.73	111

Approx. weights—Actual, 8.2 lbs. per sq. ft.; shipping, 9 lbs. per sq. ft.

†Note—Add to the width of stack $2\frac{1}{2}$ inches for staggering of stacks.

"Sovereign" Cast Iron Blast Heaters—Con. For Steam or Water

Regular Section—Ratings and Free Areas
30" Section (Steam only)—8 sq. ft. Height, $29\frac{7}{8}$ ". Width $9\frac{1}{8}$ "

No. of Sect's. in Stack	Sq. Ft. of Heating Surface	5 $\frac{3}{8}$ " Centres of Sections		5" Centres of Sections		4 $\frac{5}{8}$ " Centres of Sections		4" Centre of Section	
		2% of Face		Stand .44% of Face		37% of Face		24% of Face	
		Net Air Space in Sq. Ft.	Width of Stack in Ins.	Net Air Space in Sq. Ft.	Width of Stack in Ins.	Net Air Space in Sq. Ft.	Width of Stack in Ins.	Net Air Space in Sq. Ft.	Width of Stack in Ins.
10	80	5.42	54	4.60	50	3.90	46	2.25	40
11	88	5.96	59	5.06	55	4.29	51	2.81	44
12	96	6.50	65	5.52	60	4.68	55	3.06	48
13	104	7.04	70	5.98	65	5.07	60	3.32	52
14	112	7.57	75	6.44	70	5.46	65	3.57	56
15	120	8.11	81	6.90	75	5.85	69	3.83	60
16	128	9.65	86	7.36	80	6.24	74	4.08	64
17	136	9.19	91	7.82	85	6.63	79	4.34	68
18	144	9.73	97	8.28	90	7.02	83	4.59	72
19	152	10.27	102	8.75	95	7.41	88	4.85	76
20	160	10.81	108	9.21	100	7.80	92	5.11	80
21	168	11.35	113	9.67	105	8.19	97	5.36	84
22	176	11.89	118	10.13	110	8.58	102	5.62	88
23	184	12.42	124	10.59	115	8.97	106	5.87	92
24	192	12.96	129	11.05	120	9.36	111	6.13	96

40" Section (Steam or Water)—10.75 sq. ft. Height, $40\frac{15}{16}$ ". Width, $9\frac{1}{8}$ "

		5 $\frac{3}{8}$ " Centres		5" Centres		4 $\frac{5}{8}$ " Centres		4" Centres	
		Sq. Ft.	Width in Ins.	Sq. Ft.	Width in Ins.	Sq. Ft.	Width in Ins.	Sq. Ft.	Width in Ins.
10	107.50	7.29	54	6.20	50	5.25	46	3.50	40
11	118.25	8.02	59	6.82	55	5.77	51	3.85	44
12	129.00	8.74	65	7.44	60	6.30	55	4.20	48
13	139.75	9.47	70	8.06	65	6.82	60	4.55	52
14	150.50	10.19	75	8.68	70	7.35	65	4.90	56
15	161.25	10.91	81	9.30	75	7.87	69	5.25	60
16	172.00	11.64	86	9.92	80	8.40	74	5.60	64
17	182.75	12.36	91	10.54	85	8.92	79	5.95	68
18	193.50	13.09	97	11.16	90	9.45	83	6.30	72
19	204.25	13.82	102	11.78	95	9.97	88	6.65	76
20	215.00	14.54	108	12.40	100	10.50	92	7.00	80
21	225.75	15.26	113	13.02	105	11.02	97	7.35	84
22	236.50	15.98	118	13.64	110	11.55	102	7.70	88
23	247.25	16.71	124	14.26	115	12.07	106	8.05	92
24	258.00	17.43	129	14.88	120	12.60	111	8.40	96

50" Section (Steam or Water)—13.5 sq. ft. Height, $50\frac{29}{32}$ ". Width, $9\frac{1}{8}$ "

		5 $\frac{3}{8}$ " Centres	5" Centres	4 $\frac{5}{8}$ " Centres	4" Centres
		Sq. Ft.	Width in Ins.	Sq. Ft.	Width in Ins.
10	135.0	9.05	54	7.68	50
11	148.5	9.95	59	8.45	55
12	162.0	10.85	65	9.22	60
13	175.5	11.75	70	9.99	65
14	189.0	12.65	75	10.76	70
15	202.5	13.55	81	11.53	75
16	216.0	14.45	86	12.30	80
17	229.5	15.35	91	13.07	85
18	243.0	16.25	97	13.84	90
19	256.5	17.15	102	14.59	95
20	270.0	18.05	108	15.36	100
21	283.5	18.95	113	16.13	105
22	297.0	19.85	118	16.90	110
23	310.5	20.75	124	17.67	115
24	324.0	21.65	129	18.44	120

50-inch Sections can be assembled on 4-inch centres.

Approx. weights—Actual, 8.2 lbs. per sq. ft. Shipping, 9 lbs. per sq. ft.
.. Note—Add to the width of stack $2\frac{1}{2}$ inches for staggering of stacks—except 4-inch centres not staggered.

“Sovereign” Cast Iron Blast Heaters—Con. **For Steam or Water**

Regular Section—Ratings and Free Areas

60" Section (Steam or Water)—16 sq. ft. Height, $60\frac{11}{16}$ ". Width, $9\frac{1}{8}$ "

No. of Sect's. in Stack	Sq. Ft. of Heating Surface	5 $\frac{3}{8}$ " Centres of Sections		5" Centres of Sections		4 $\frac{5}{8}$ " Centres of Sections	
		52% of Face		Stand. 44% of Face		37% of Face	
		Net Air Space in Sq. Ft.	Width of Stack in Inches	Net Air Space in Sq. Ft.	Width of Stack in Inches	Net Air Space in Sq. Ft.	Width of Stack in Inches
10	160	10.85	54	9.21	50	7.81	46
11	176	11.93	59	10.13	55	8.59	51
12	192	13.00	65	11.05	60	9.37	55
13	208	14.08	70	11.97	65	10.15	60
14	224	15.15	75	12.89	70	10.93	65
15	240	16.23	81	13.81	75	11.71	69
16	256	17.31	86	14.73	80	12.49	74
17	272	18.39	91	15.65	85	13.27	79
18	288	19.46	97	16.57	90	14.05	83
19	304	20.54	102	17.50	95	14.83	88
20	320	21.62	108	18.42	100	15.61	92
21	336	22.70	113	19.34	105	16.39	97
22	352	23.78	118	20.26	110	17.17	102
23	348	24.85	124	21.18	115	17.95	106
24	384	25.93	129	22.10	120	18.73	111

72" Section (Steam or Water)—19 sq. ft. Height, $72\frac{3}{32}$ ". Width, $9\frac{1}{8}$ "

		5 $\frac{3}{8}$ " Centres		5" Centres		4 $\frac{5}{8}$ " Centres	
10	190	13.03	54	11.04	50	9.37	46
11	209	14.31	59	12.17	55	10.30	51
12	228	15.60	65	13.27	60	11.25	55
13	247	16.90	70	14.35	65	12.18	60
14	266	18.19	75	15.46	70	13.11	65
15	285	19.49	81	16.58	75	14.06	69
16	304	20.78	86	17.70	80	14.99	74
17	323	22.07	91	18.78	85	15.92	79
18	342	23.34	97	19.88	90	16.86	83
19	361	24.64	102	21.00	95	17.80	88
20	380	25.95	108	22.10	100	18.73	92
21	399	27.25	113	23.20	105	19.67	97
22	418	28.52	118	24.31	110	20.60	102
23	437	29.80	124	25.40	115	21.54	106
24	456	31.10	129	26.50	120	22.47	111

Approx. weights—Actual 8.2 lbs. per square foot, shipping, 9 lbs. per square foot.

Note—Width of stack includes 2 inches for staggering of stacks.

Note—60 inch sections can be assembled on 4 inch centres.

“Climax” Indirect Radiators

For Steam or Water



Fig. 63

CAPACITY AND DIMENSIONS

Name	Length Inches	Height Inches	Width Inches	Distance Centre to Centre of Tapping	Sq. Ft. of Heating Surface Per Sect.
Climax	36	11	4	7	13

“Climax” indirect sections are connected together at top and bottom with 2-inch right and left hand screw nipples or 2-inch right and left Hexagon nipples.

The small cast iron strip connecting between the hubs should be always broken to allow for expansion of the section.

Data, page 117.

“Climax” Indirect Radiators

For Steam or Water

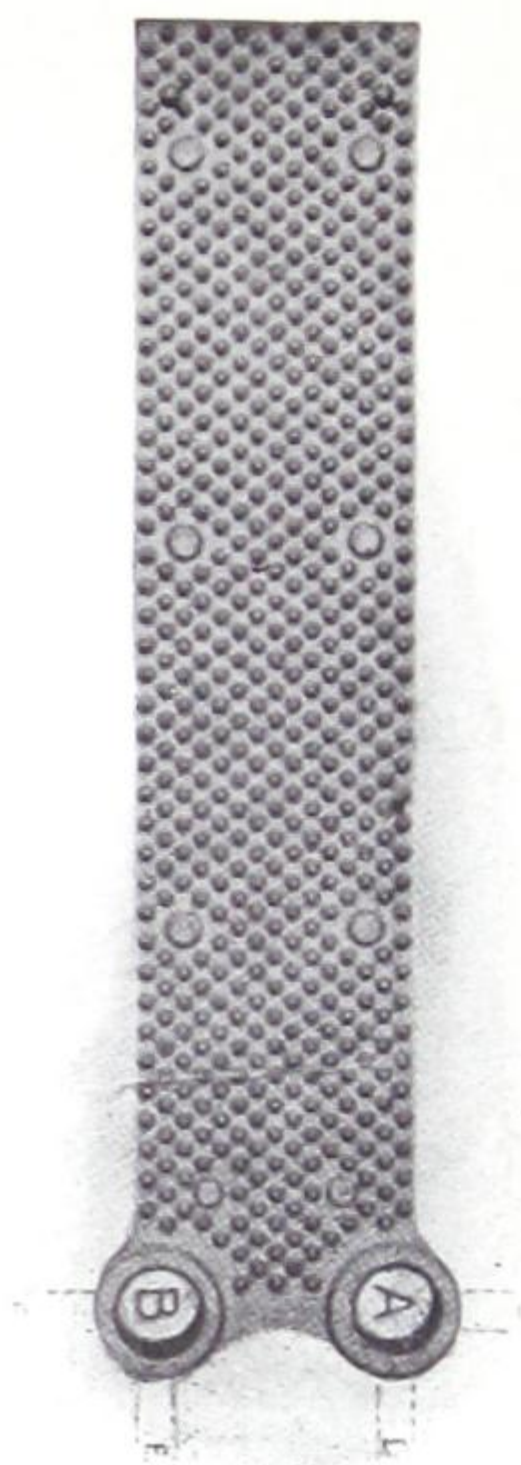
DATA FOR CLIMAX RADIATORS

Sections in Stack	Square Feet of Heating Surface	Area Cold Air Supply. Square Inches	Area Hot Air Flue. Square Inches	Size for Brick Work Hot Air Flues. Inches	Size Register Inches	Ratio of 1 to 30	Ratio of 1 to 35	Ratio of 1 to 40
2	26	54	72	8x 8	9x12	780	910	1040
3	39	72	96	8x12	10x14	1170	1365	1560
4	52	90	120	8x12	12x15	1560	1820	2080
5	65	108	144	12x12	12x19	1950	2275	2600
6	78	126	168	12x12	14x22	2340	2730	3120
7	91	144	192	12x16	14x24	2730	3185	3640
8	104	162	226	12x16	16x20	3120	3640	4160
9	117	180	240	12x20	16x24	3510	4095	4680
10	130	198	264	12x20	20x20	3900	4550	5200
11	143	216	288	12x24	20x24	4290	5005	5720
12	156	234	312	12x24	20x24	4680	5460	6240

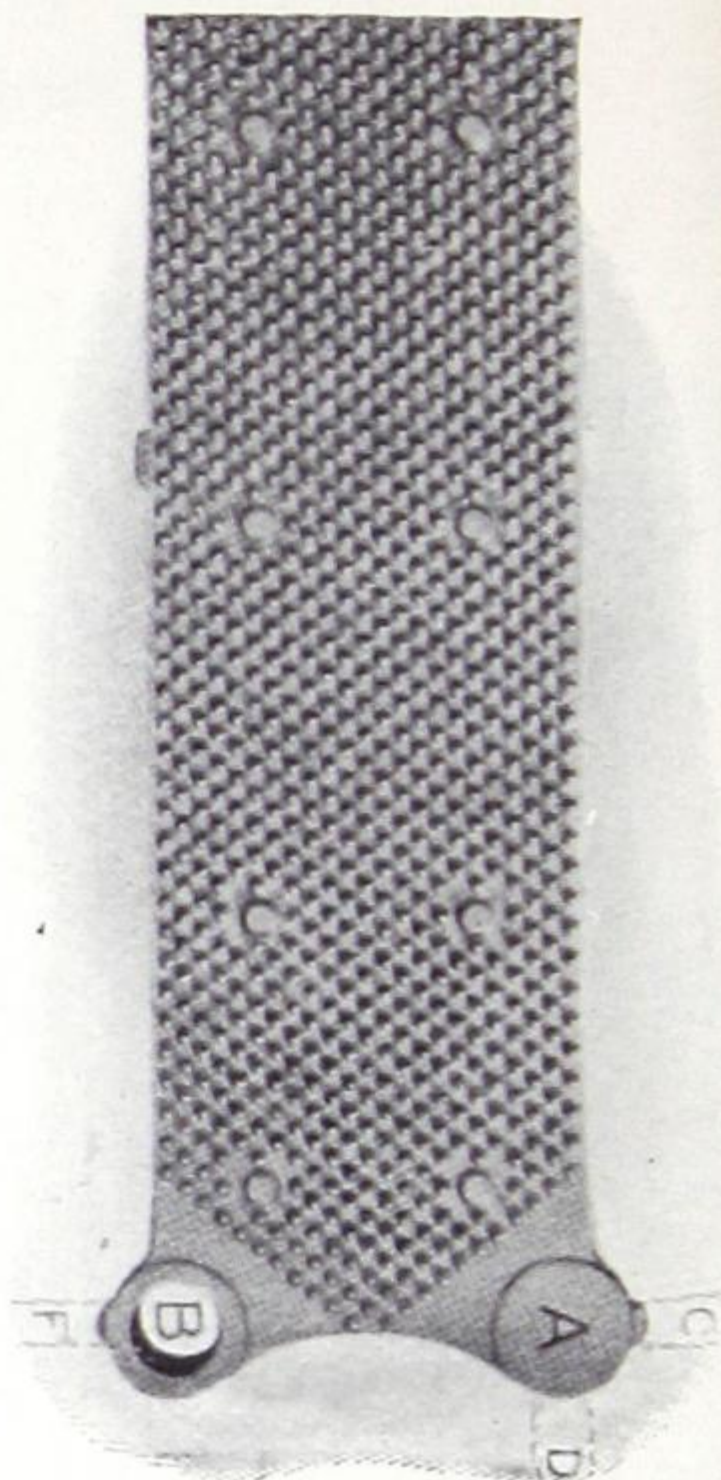
Note—Climax sections are always shipped loose unless ordered otherwise.

Sanitary School Pin Indirect Radiators

For Steam or Water



Water Section
Fig. 101



Steam Section
Fig. 102

CAPACITIES AND DIMENSIONS

Name	Length Inches	Height Inches	Height of Connecting Points	Width Occupied in Stack	Distance Centre to Centre Opening	Sq. Ft. of Heating Surface Per Sect.
School Pin	36	13 $\frac{7}{8}$	15	3 $\frac{3}{4}$	11 $\frac{3}{8}$	20
School Pin	34 $\frac{3}{4}$	11 $\frac{1}{2}$	13 $\frac{3}{4}$	2 $\frac{7}{8}$	10 $\frac{1}{8}$	15

School Pin Indirect Sections (20 square foot sections) are connected with 2 inch right and left Hexagon Nipples.

School Pin Indirect Sections (15 square foot sections) are connected with 2 inch right and left screw Nipples.

Note—School Pin Sections are always shipped loose unless ordered otherwise.



Fittings, Valves and Specialties

Radiator Humidifiers

(Air Moisteners)

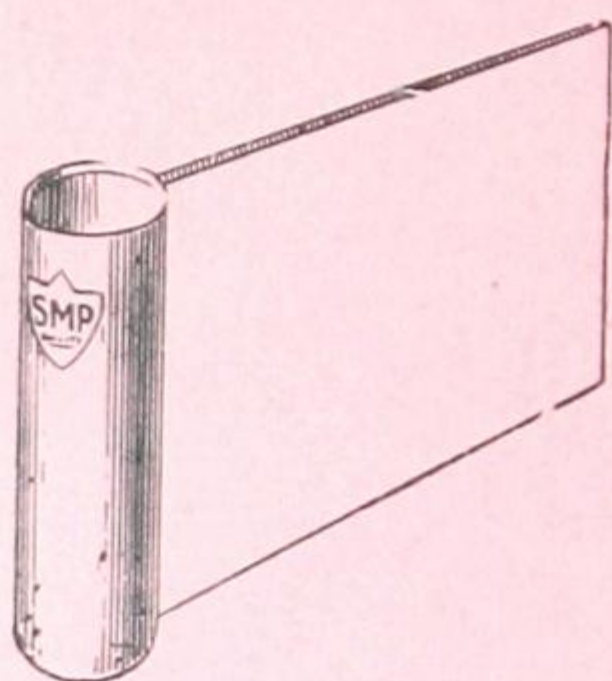


Fig. 45

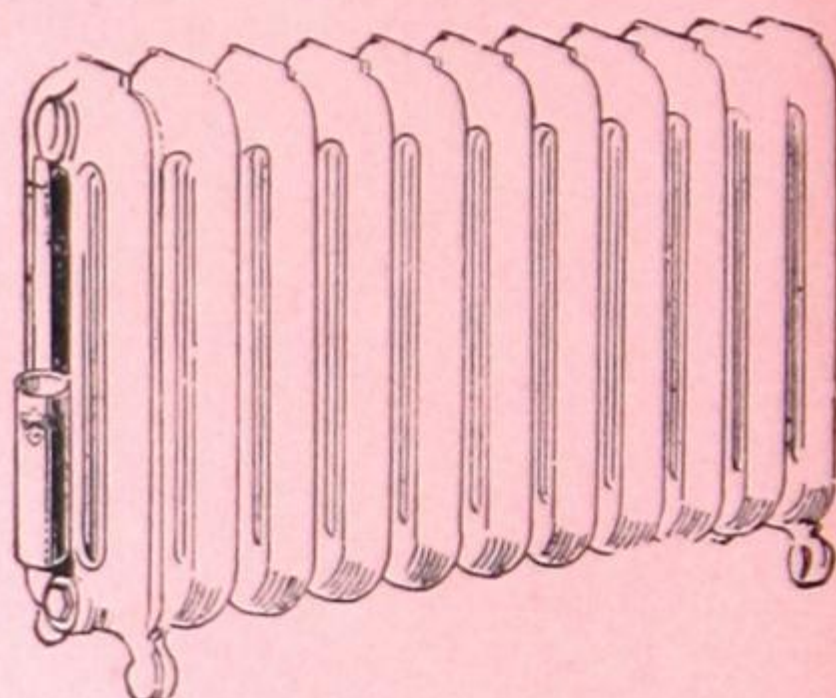


Fig. 45 A

Design Registered. Patent Pending.

	No. 5	No. 10
Size of Pan, inches.....	18x5	18x9½
Size of Supply Can, inches.....	3x5	3x9½
Total Capacity, quarts.....	1¼	2½

These Humidifiers are manufactured from galvanized iron and are sold either plain or finished in pearl grey, brown or white Japan.

When placed in the Radiator they come in direct contact with it on both sides, thus giving the greatest possible evaporation of water.

Prices on application.

The "Hardt" Heat Generator

For Hot Water Heating Systems

No Mercury

No Springs



Fig. 156
Outside View

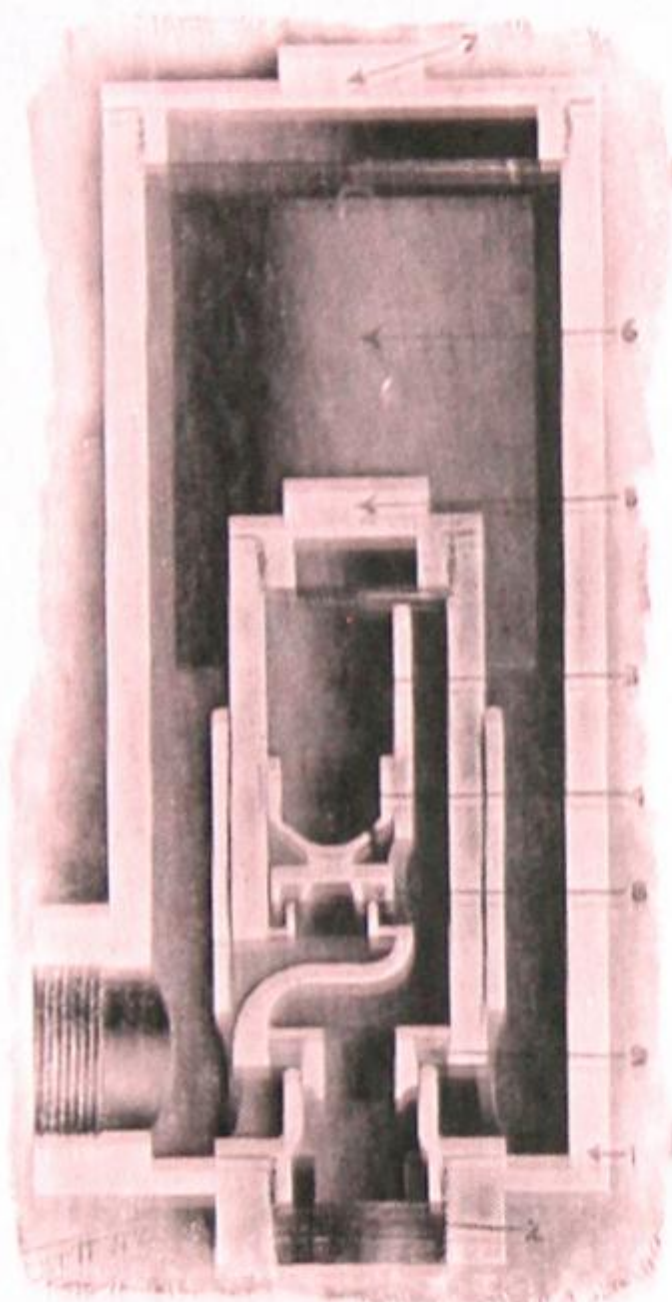


Fig. 157
Inside View

If the system is deficient in heating surface or the circulation is sluggish due to faulty piping the "Hardt" Generator will raise the temperature and quicken the circulation, thereby increasing the heating efficiency of the plant, at a very small cost.

The Generator is tapped 1 inch.

One size Generator does all size jobs.

List Price.....\$30.00

“Babbitt” Adjustable Sprocket Rim

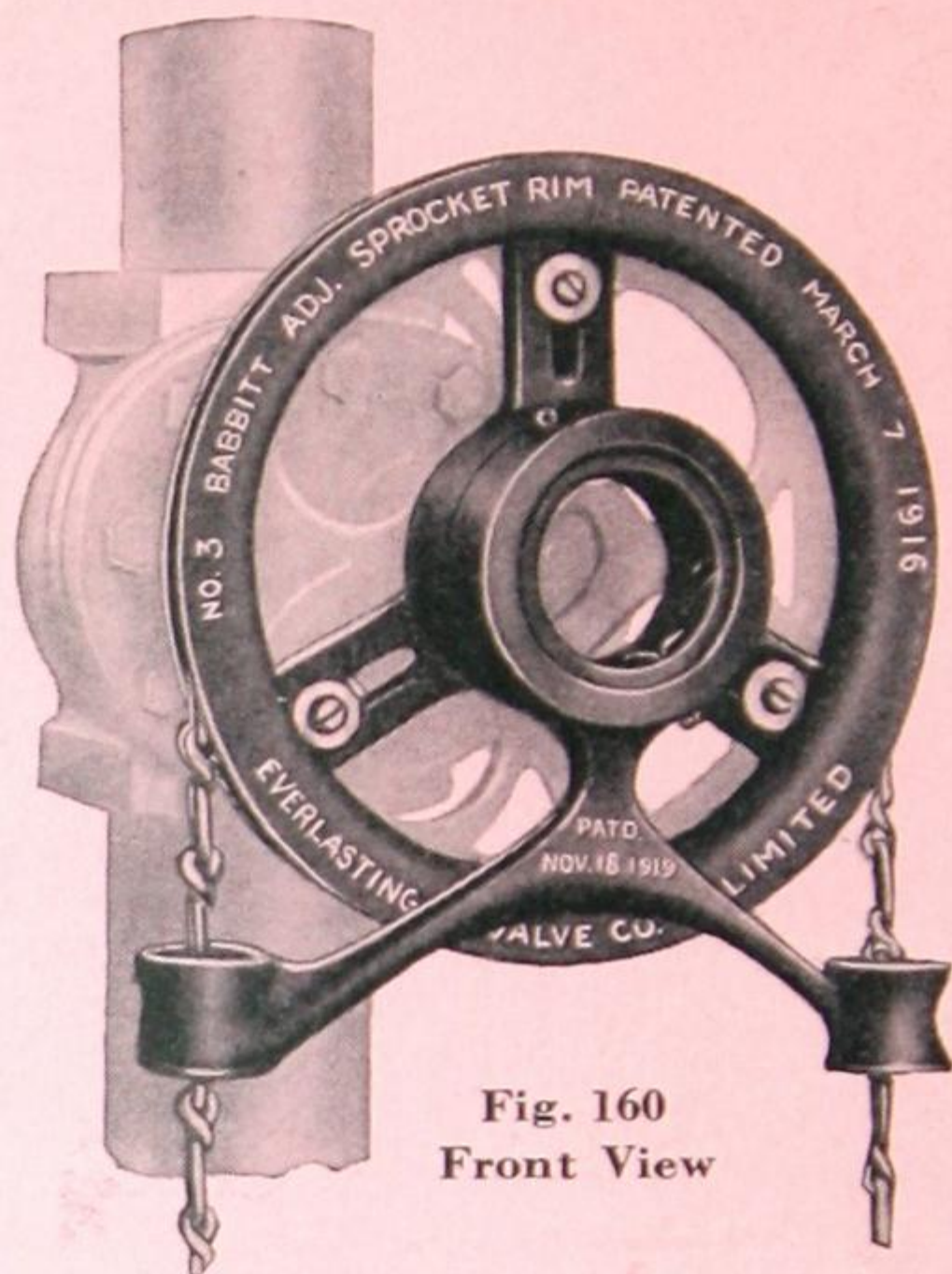


Fig. 160
Front View

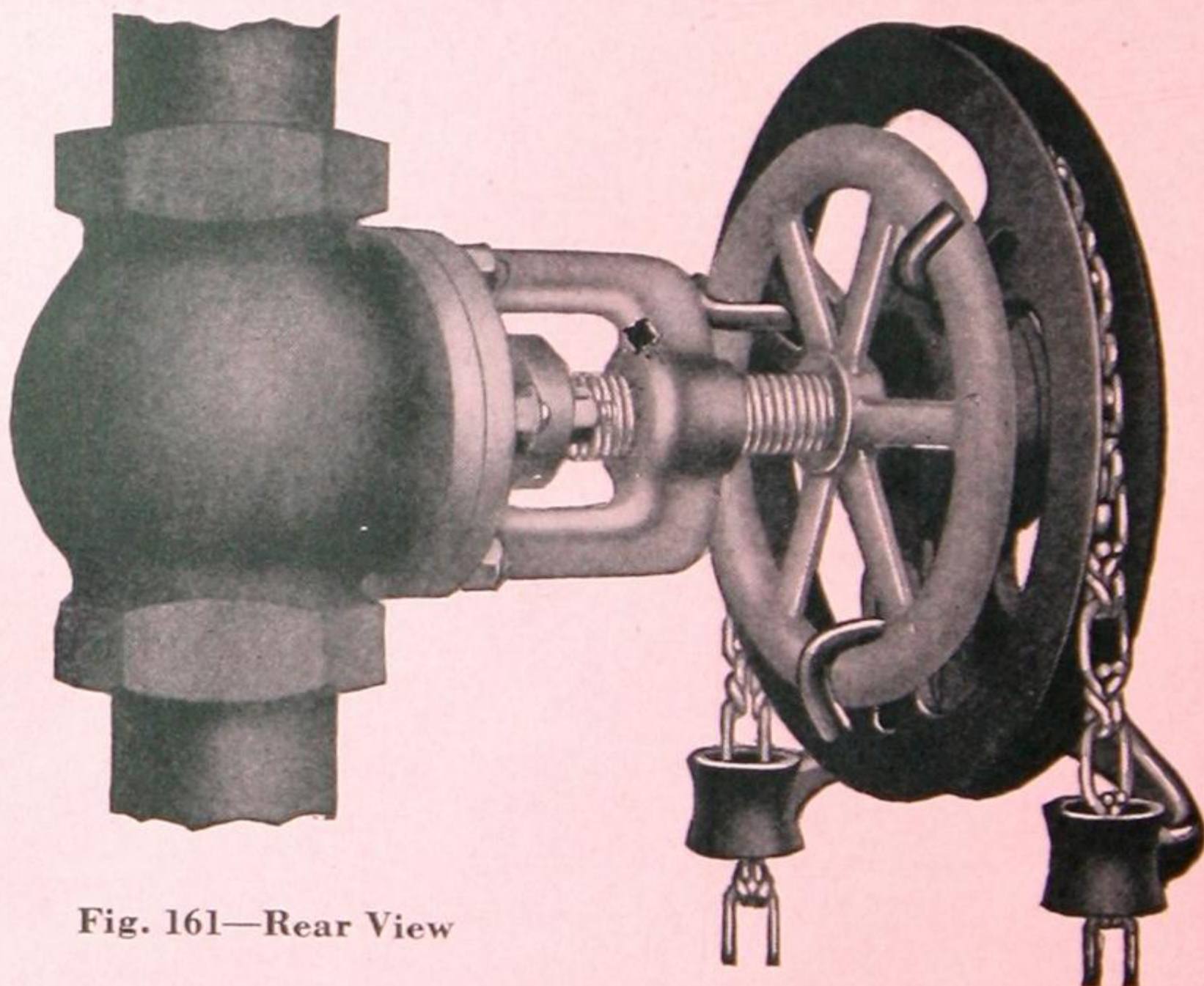


Fig. 161—Rear View

Illustrating the “Babbitt” Adjustable Sprocket Rim with “Babbitt” Chain Guide attachment.

“Babbitt” Adjustable Sprocket Rim
With Chain Guide

PRICE LIST SUBJECT TO DISCOUNT

Size No.	Rim Diameter “O.D.” Inches	Minimum and Maximum “O.D.” of Valve Wheels Rim will adjust to— Min’m. Max’m.	Rim with Chain Guide List Each	Rust Proof Chain List per Foot
0	4	2 " to 3½"	\$ 2.40	\$.10½
1	5½	3½" to 5 "	4.00	.14
1½	7	5½" to 6½"	5.20	.14
2	9	7 " to 8½"	6.40	.14
2½	12	8 " to 11½"	8.80	.22
3	15	11 " to 14½"	10.80	.22
3½	19	15 " to 18½"	15.20	.22
4	22	19 " to 21½"	20.00	.37
4½	26	22 " to 25½"	28.00	.37
5	30	26 " to 30 "	32.00	.37

List Price includes necessary Hook Bolts to attach Rim to Wheel of Valve.

When ordering, give the diameter of the Valve Wheel to be fitted and number of feet of Chain required.

TABLE OF CHAIN MEASUREMENTS

To ascertain number of feet of Chain required to operate Rim, measure from centre of Valve Wheel the drop required; double that amount and add for each Rim size according to Number of Rim, the amount in feet and inches given in table below.

No. 0	add	6"	No. 3	add	2 ft. 6"
No. 1	add	9"	No. 3½	add	3 ft. 0"
No. 1½	add	1 ft. 0"	No. 4	add	3 ft. 6"
No. 2	add	1 ft. 6"	No. 4½	add	4 ft. 0"
No. 2½	add	2 ft. 0"	No. 5	add	5 ft. 0"

These amounts allow for loss in circles at top of wheel and bottom of loop.

Example: Customer orders a No. 4 Rim—with 15 ft. drop.

Answer: 15ft.x2 = 30ft.+3 ft. 6" = 33 ft. 6" of Chain required.

“Everlasting” Blow-Off Valve

“It Never Leaks”

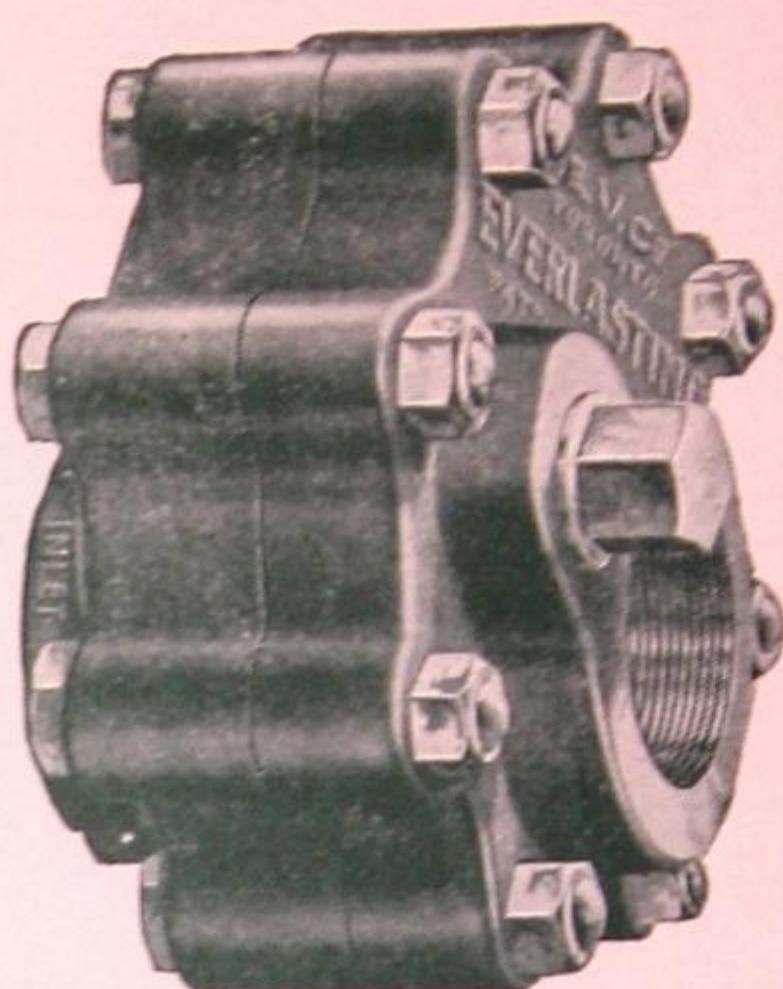


Fig. 158

Regular “Standard Type” EVERLASTING VALVE

Iron Body — Screwed ends.
Extra heavy for 250 lbs. work-
ing steam pressure, or 400 lbs.
working water pressure.

Regular “Standard Type” EVERLASTING VALVE

Iron Body — Flanged ends.
Extra heavy for 250 lbs. work-
ing steam pressure, or 400 lbs.
working water pressure.

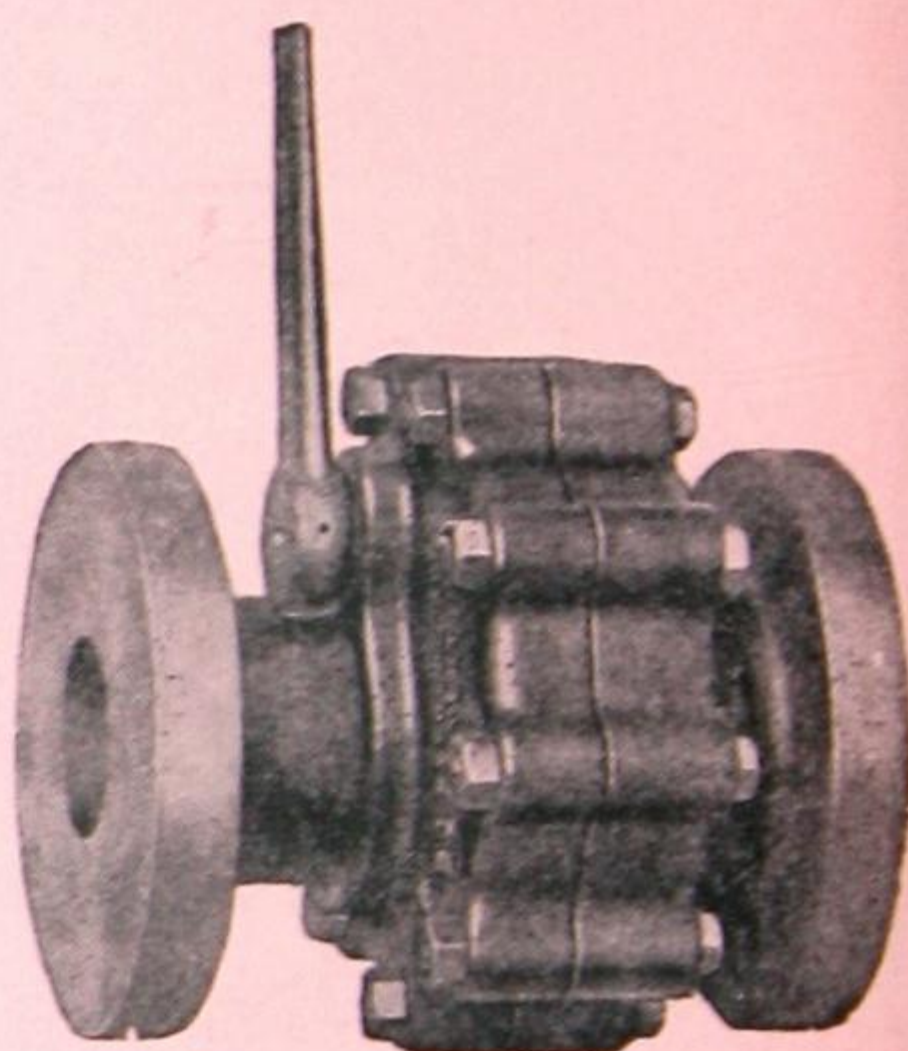


Fig. 159

Size	1	1¼	1½	2	2½	3	4	6
Iron Body, screwed...	11.00	16.00	22.00	25.00	32.00	44.00	70.00	Quoted on Request
Iron Body, screwed with Rack and Pin- ion.....			28.00	34.50	40.00	54.00	80.00	
Iron Body, flanged, faced only.....	15.00	19.00	26.00	30.00	39.00	50.00	78.00	
Iron Body, flanged, with Rack and Pin- ion faced only.....			32.00	39.00	47.00	60.00	88.00	

Economy Pumps

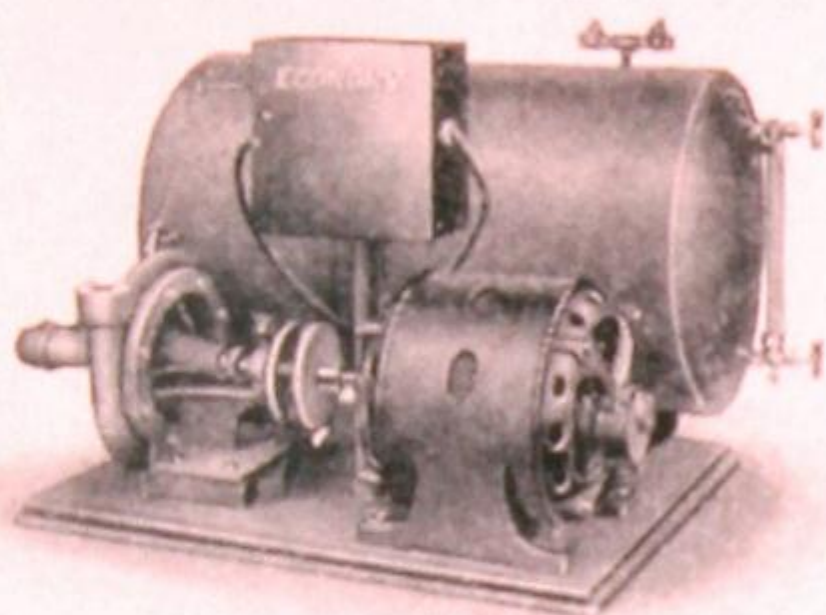


Fig. 2176

ECONOMY CENTRIFUGAL AUTOMATIC CONDENSATION PUMP AND RECEIVER

An electric driven condensation pump specially designed to handle hot water. Receivers are furnished very close to floor—making it unnecessary to pit. Pump is direct connected by flexible coupling to motor. The automatic control consists of a float switch, enclosed in a metal cabinet. Connections in accordance with Underwriters Rules.

Standard capacities to drain from 1,000 to 50,000 sq. ft. radiation. Can also be supplied in the underground type. Larger sizes special.

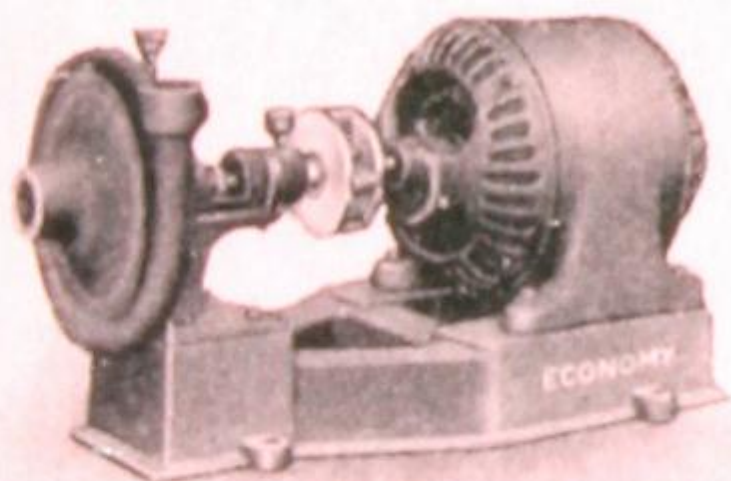


Fig. 2132. Type A

ECONOMY HOT WATER CIRCULATING PUMPS

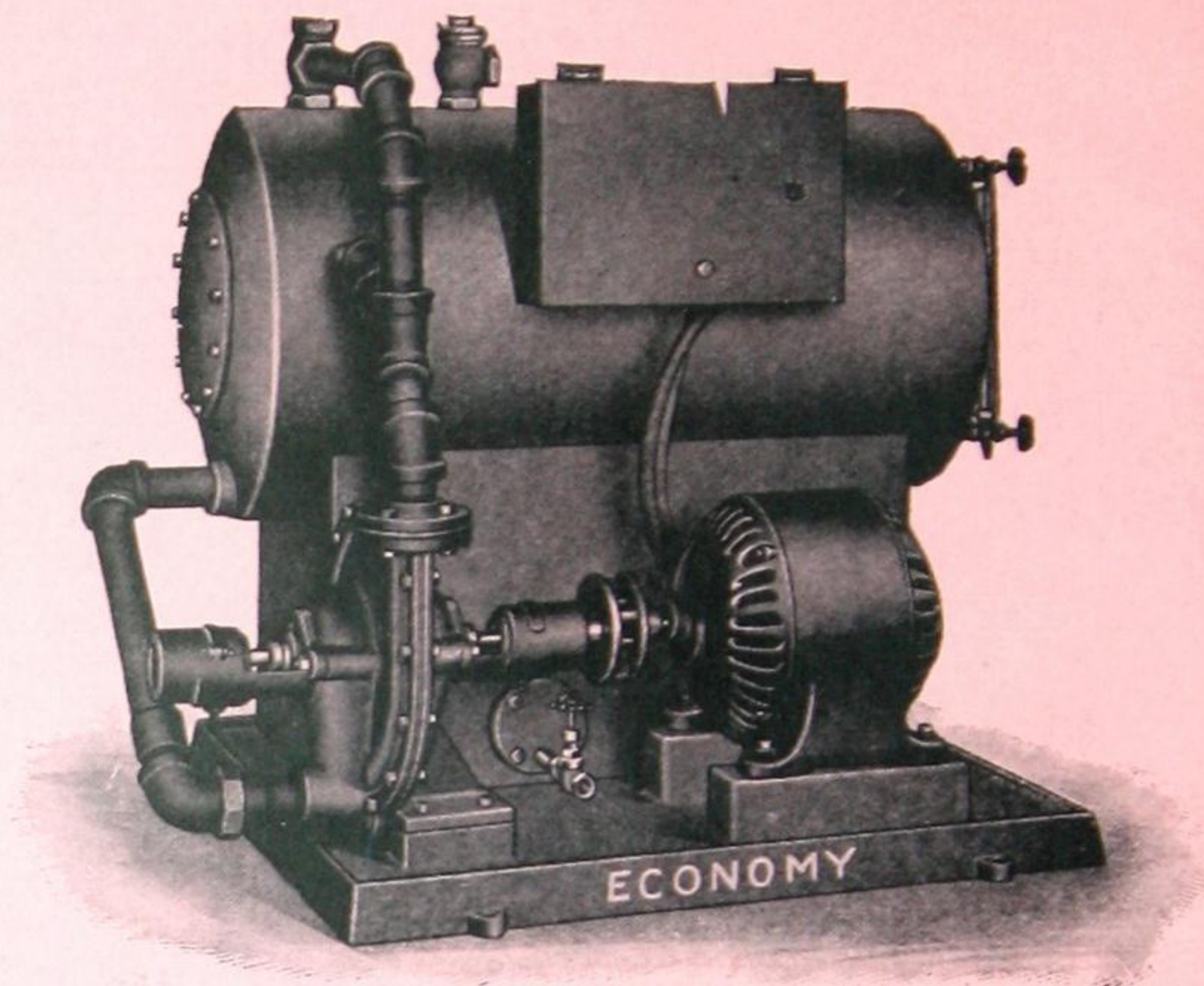
Fitted with out-board ring oil bearings—Can be supplied either direct connector or belt driven.

Made in capacities to handle from 10 to 725 gals. per minute.

Special Pump Catalogue sent on request.

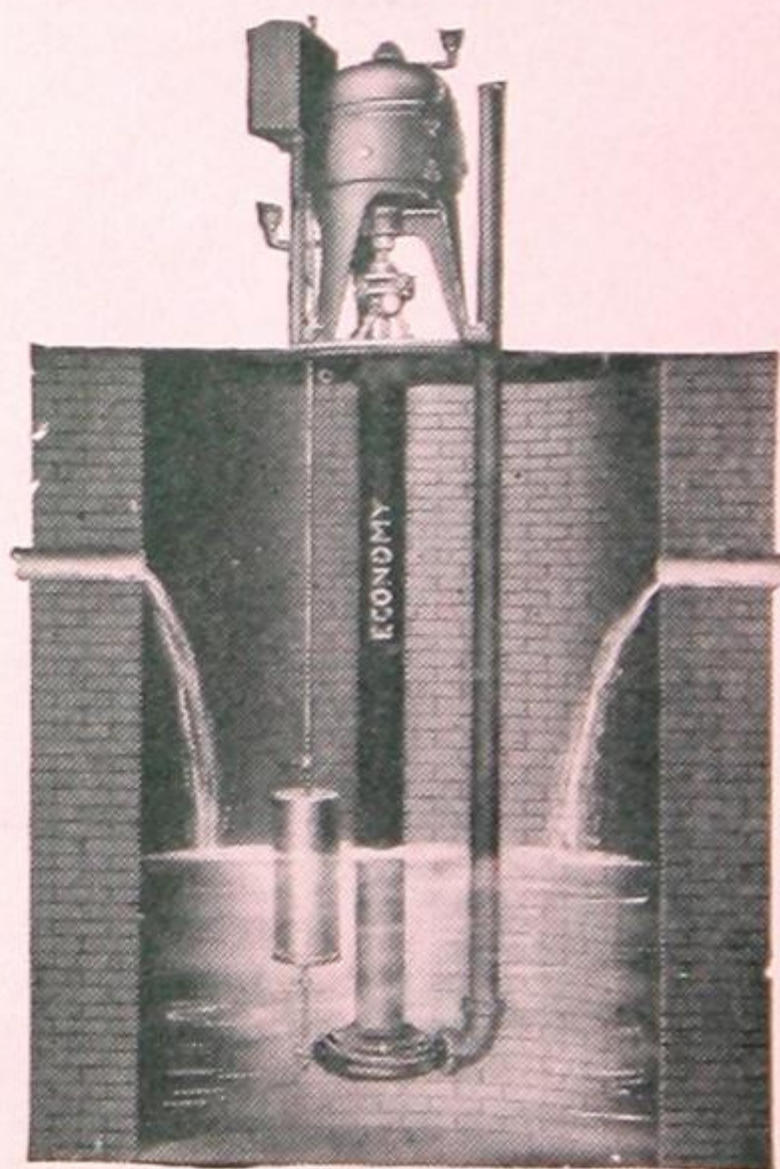
Economy Pumps

Economy Centrifugal Vacuum and Boiler Feed Pump



Patent Pending

Fig. 2234



Economy Submerged Bilge and
Sewage Pump

A compact unit made in sizes
and capacities to pump from 7 to
1200 gals. per minute.

Special Pump Catalogue sent
on request.

Fig. 2104—Types B and C

Young Centrifugal Vacuum and Boiler Feed Pump

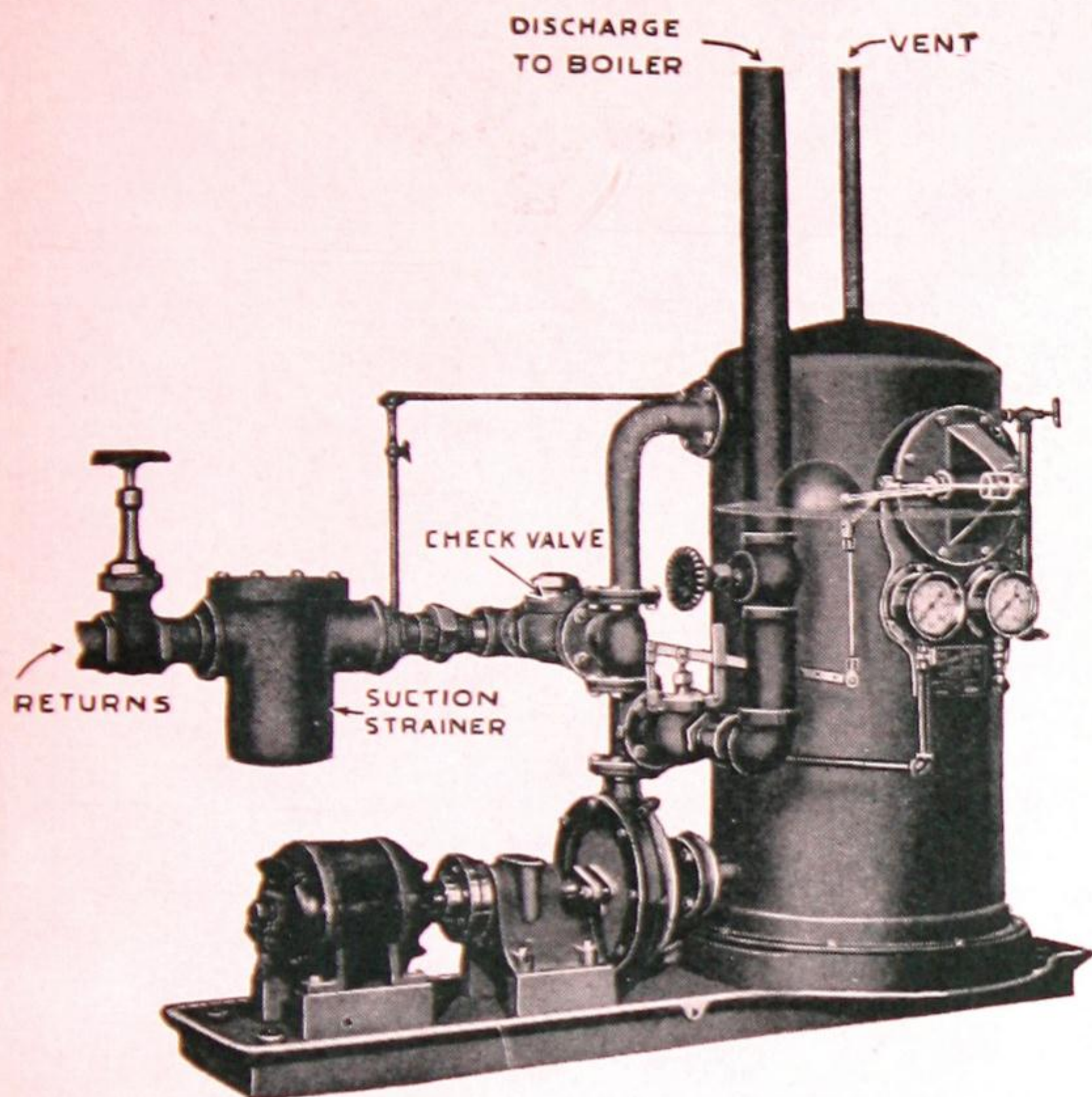


Fig. 771

Atlas Circulating Pump For Hot Water Heating

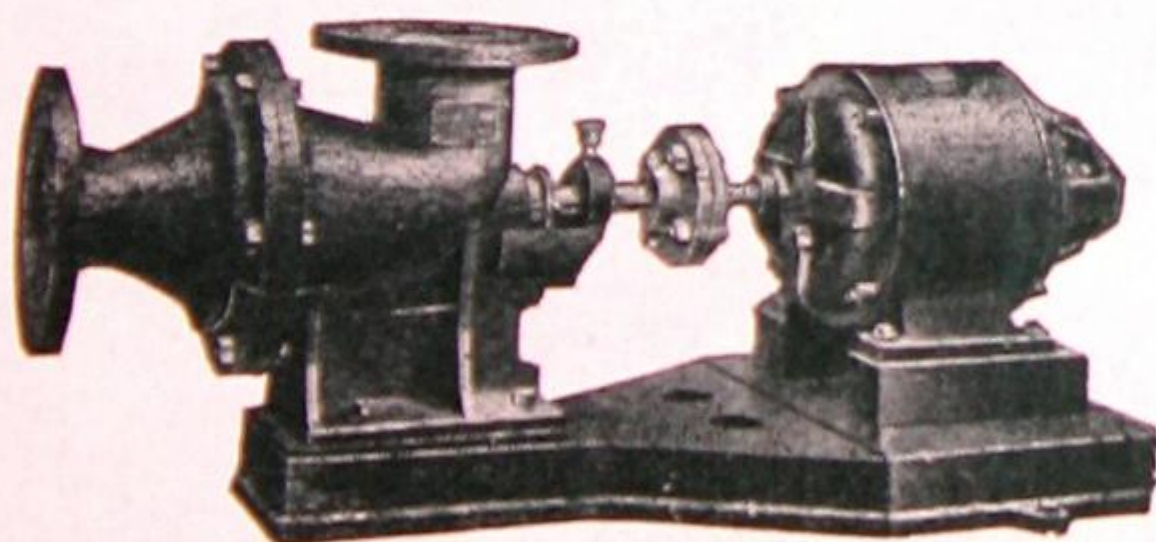


Fig. 774

Prices on application.

Damper Regulators

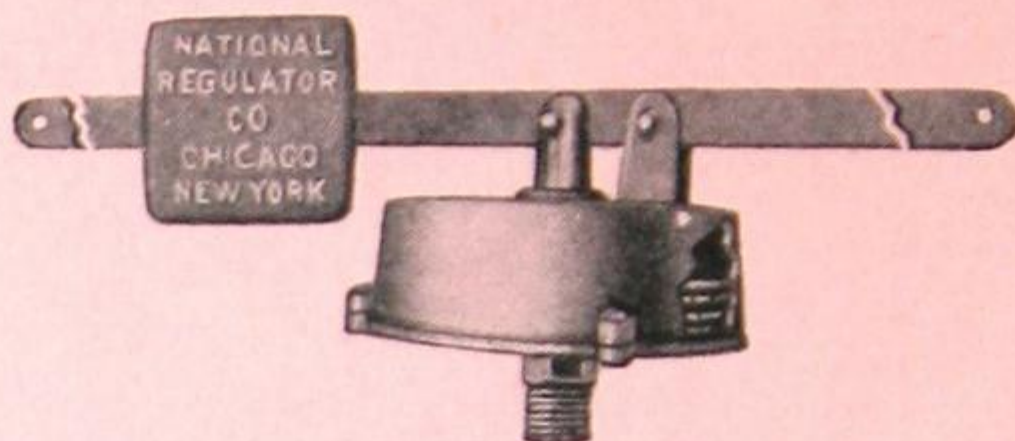


Fig. 164

Type A Jr. 4" for Low Pressure

Equipped with weight, 2 ceiling pulleys, and 12 feet No. 0 plumbers' chain. Lever length 40". Connection $\frac{1}{2}$ ". Shipping weight 10 lbs.
For small house heating boilers with balanced dampers, requiring no more than 3" lift.
Especially adapted for small gas boilers.

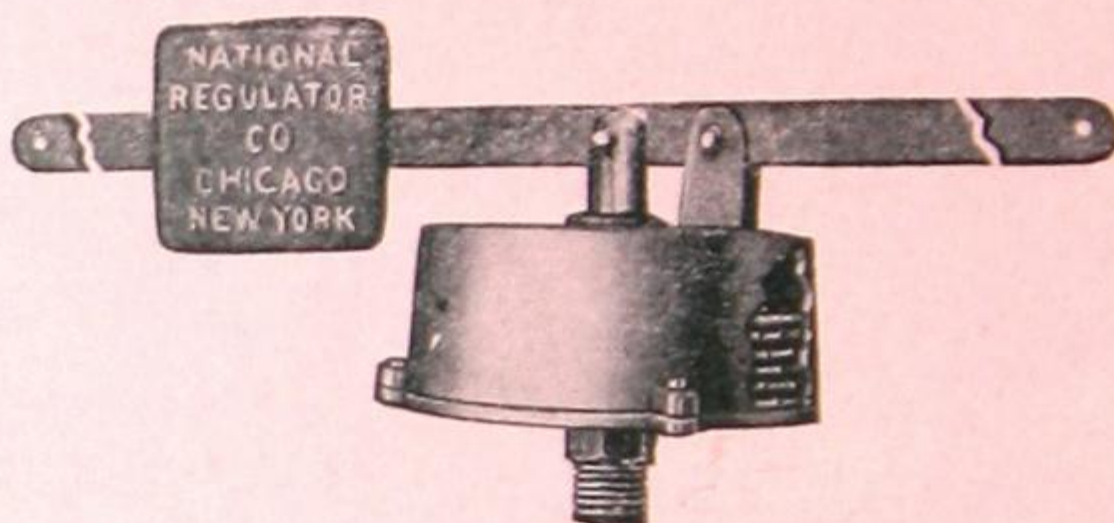


Fig. 165

Type A 4" for Low Pressure

Equipped with weight, 2 ceiling pulleys, and 12 feet No. 0 plumbers' chain. Lever length 40". Connection $\frac{1}{2}$ ". Shipping weight 15 lbs.
For medium size house heating boilers.

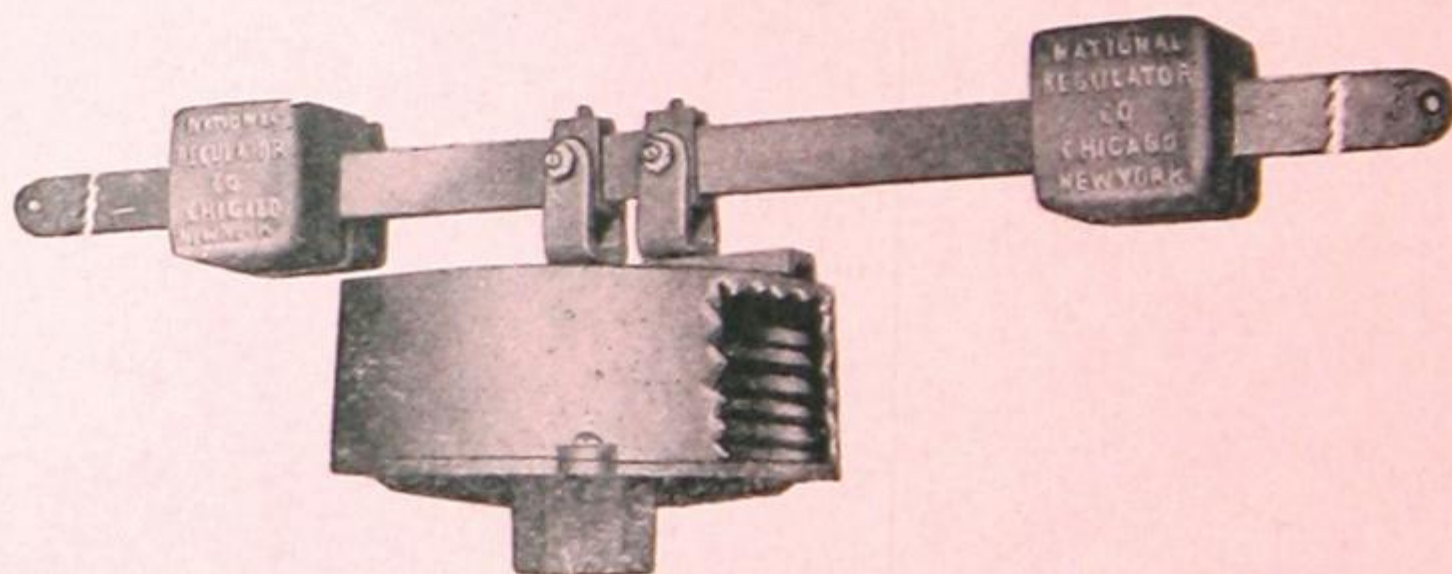


Fig. 166

Type B C-7" fo. Low Pressure or Vapor

Equipped with weights, 2 ceiling pulleys, 12 feet No. 0 plumbers' chain and universal adjustment feature. Lever length 48". Connection 1". Shipping weight 35 lbs.
For medium and large size house heating boilers fired for pressure or vapor.

Prices on application

Damper Regulators

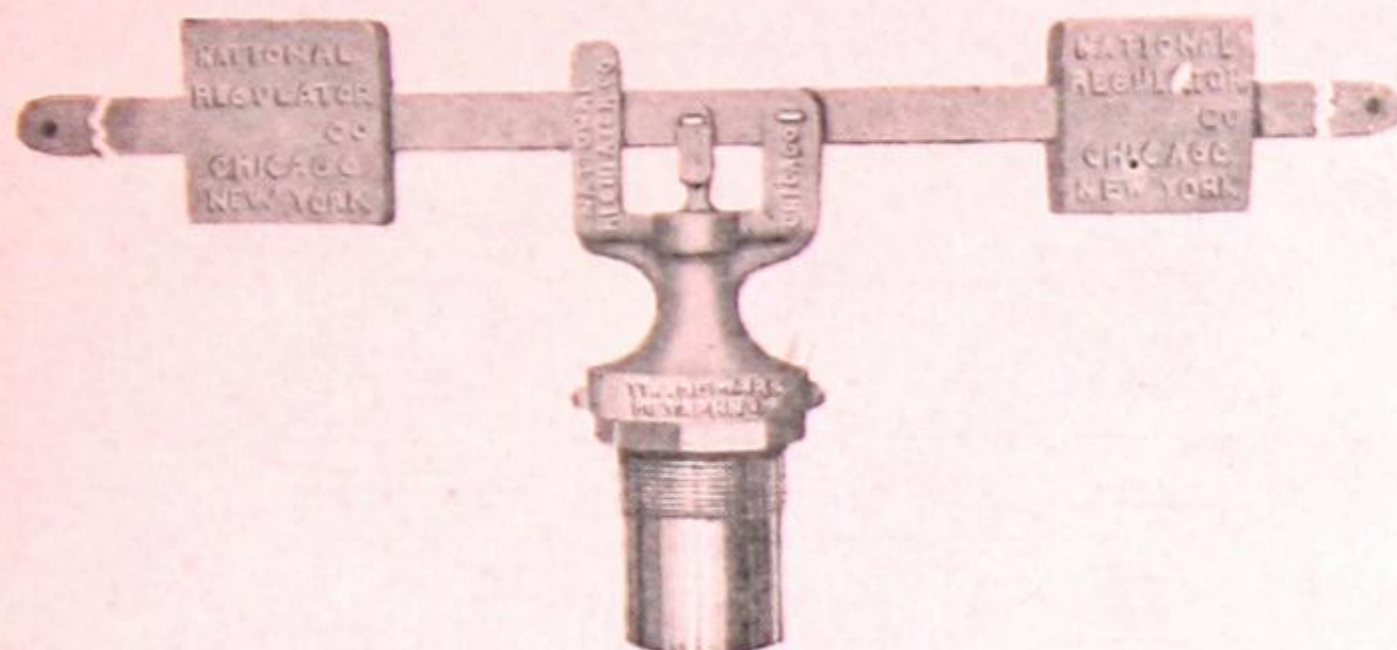


Fig. 135
Type F 2" for Hot Water Heaters

Equipped with weights, 2 ceiling pulleys and 12 feet No. 0 plumbers' chain. Lever length 40". Total height of regulator 8". Hub threaded 2" standard pipe size. Well 2½" deep. Shipping weight 10 lbs.

It will control the temperature in the heater or tank within 5 degrees thus preventing overheated or underheated conditions.

Sink Brackets

Cast Iron

Adjustable

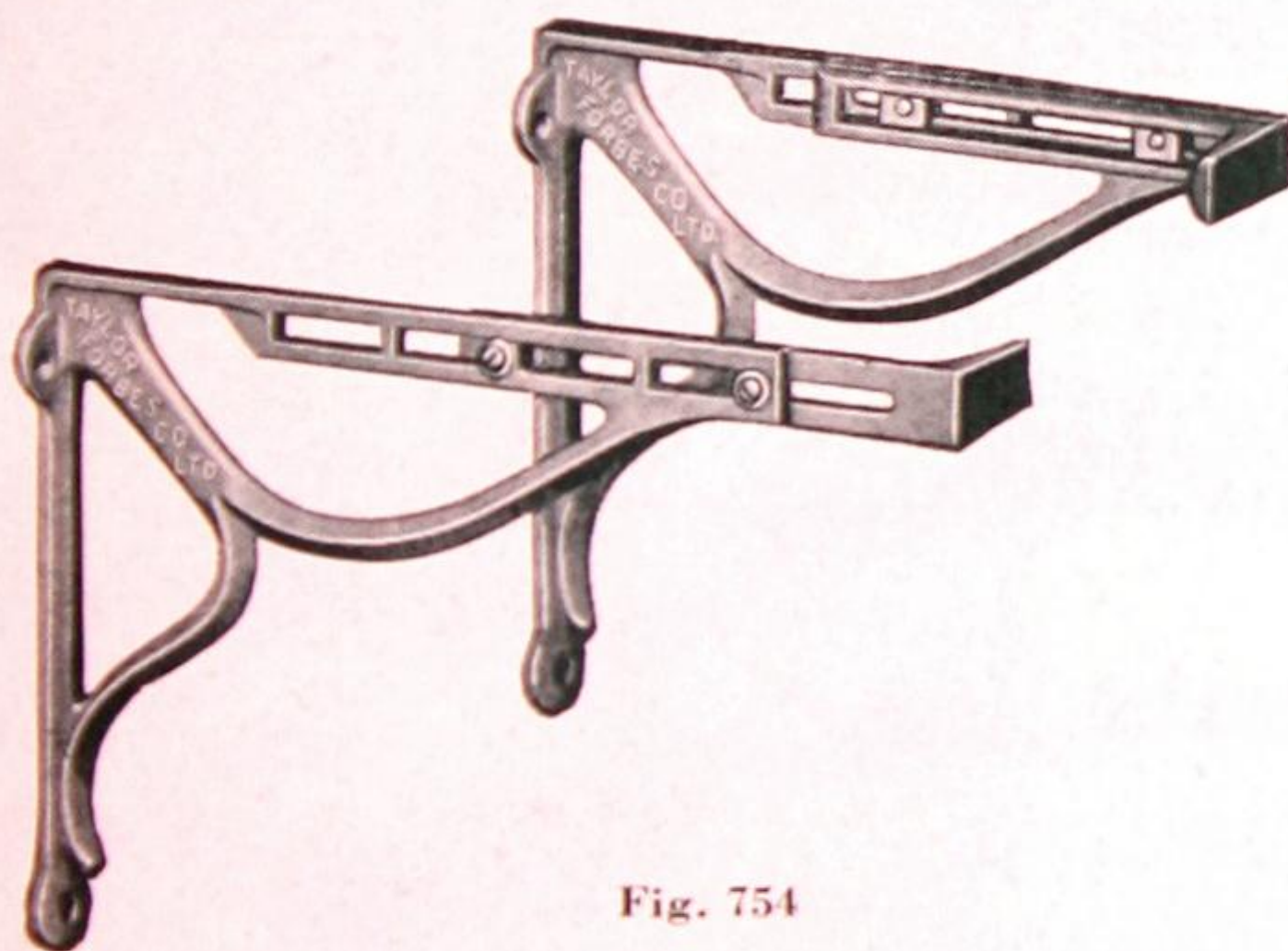


Fig. 754

A strong design with reversible, adjustable extension arm for supporting sinks solidly.

MEASUREMENTS

Back	Arm Closed	Arm Extended
2 x 10½"	12¾"	18"

Prices on application.

“Taylor” Adjustable Boiler Stand

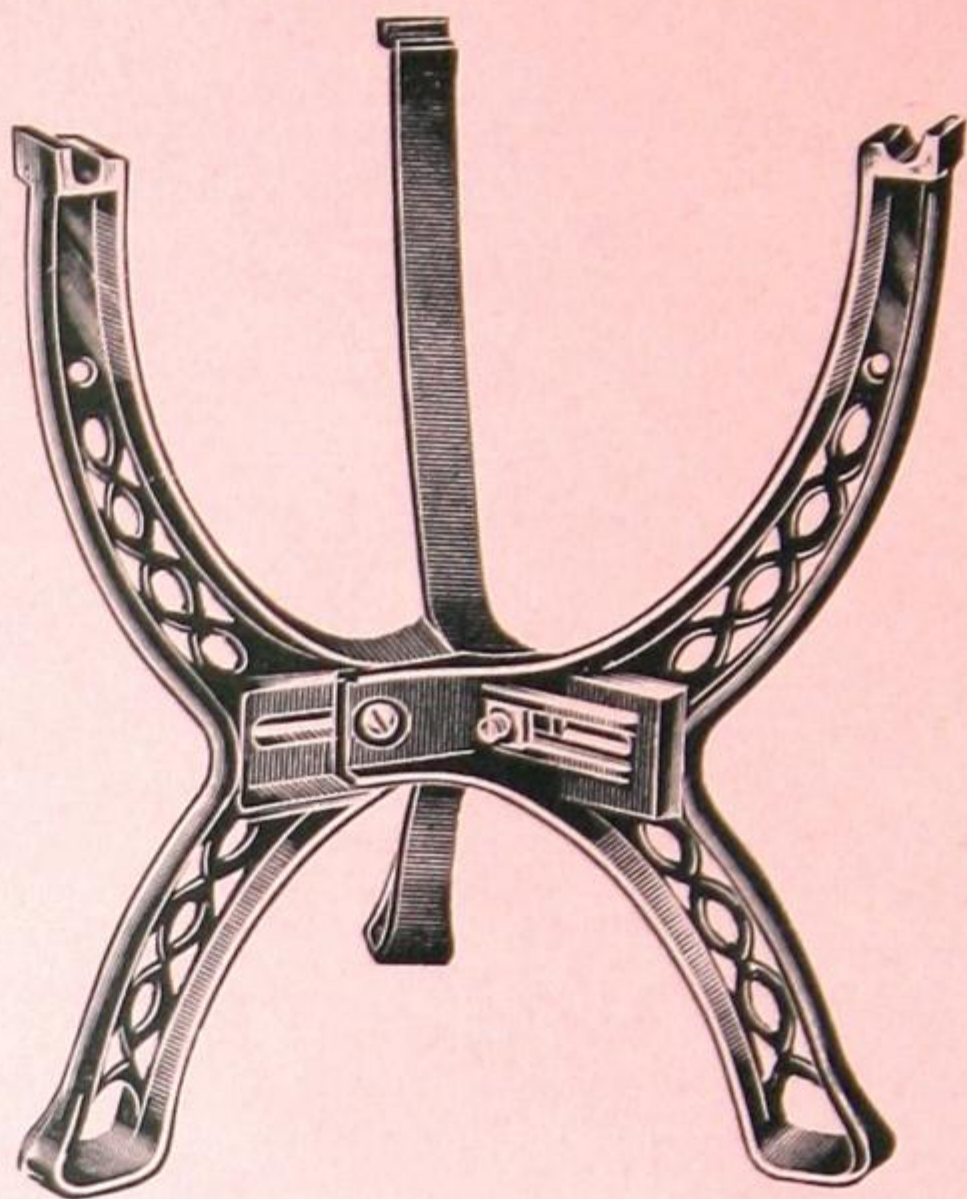


Fig. 162

Easily put together. Adjustable in diameter from $11\frac{1}{2}$ " to $13\frac{1}{2}$ ".
Height 15".

“Stahl” Adjustable Boiler Stand (Patented)

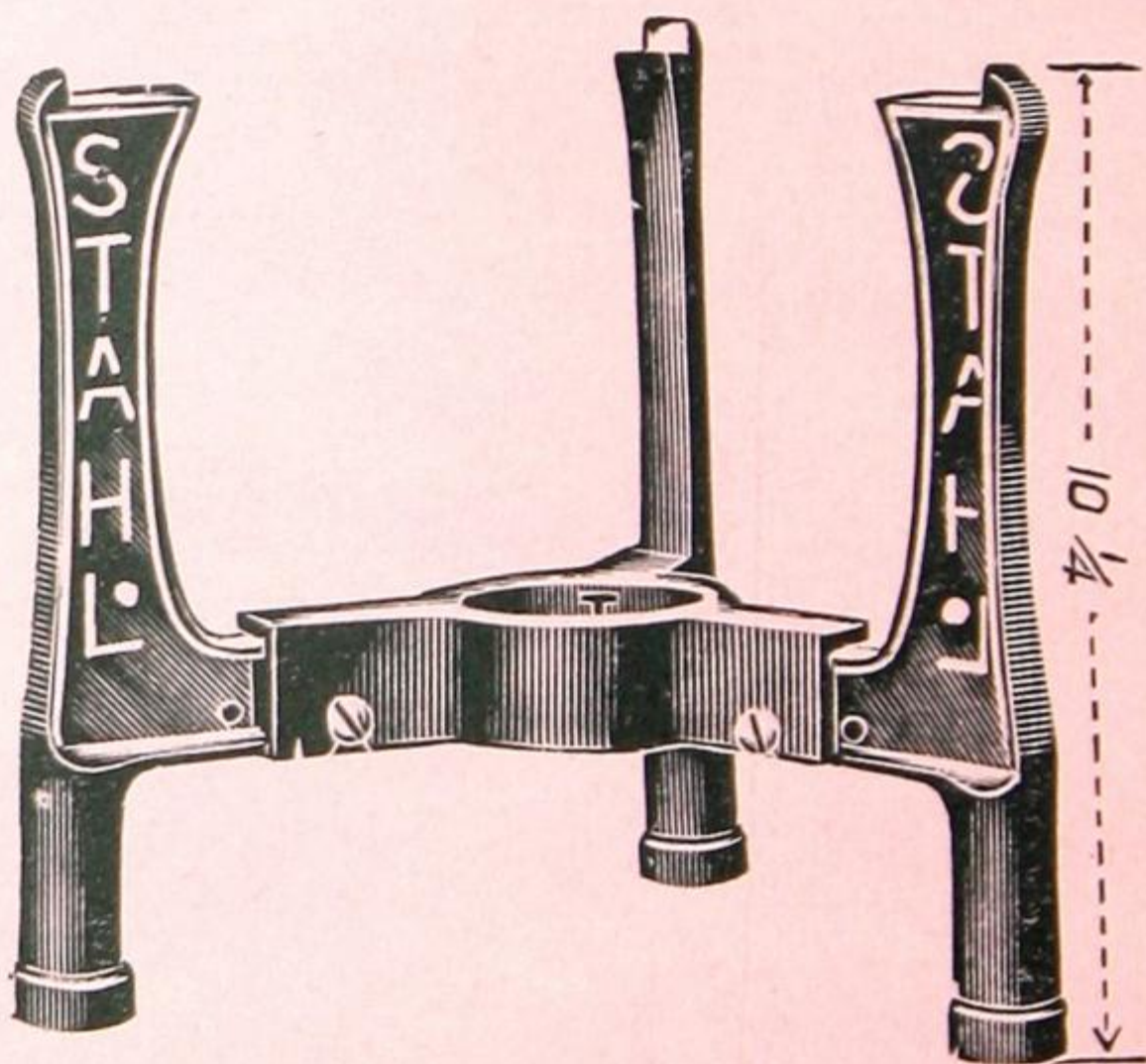


Fig. 163

Adjustable in height and diameter. Fits 12", 13", 14" or 15" boiler.
Prices on application.

Taylor-Forbes Domestic Heaters

For Hot Water and Warm Air Furnaces



Fig. 66

No. of Heater	Diameter Inches	Capacity For 1" Pipe Including Mains and Returns Feet	Size of Tappings Inches	Capacity of Kitchen Boiler Gallons	List Price
10	9½	200	¾ or 1	30	\$3.25

The No. 10 Coil has four separate tappings, one in the centre and three on the side for convenience of installation in furnace, stove or boiler.

Special Vacuum Pressure Regulating Valve

In modern atmospheric vacuum or where very low pressure systems of steam heating are demanded, to insure satisfactory results, Pressure-regulating Valves, constructed especially to meet the most exacting requirements as to sensitive-ness in promptly responding to the slightest fluctuations in pressure, and proving capable of preserving the steam economies, which are the predominant features of these systems, are needed.

For reducing steam pressures for heating purposes only from that carried on boilers or steam-heating mains down to a point at atmospheric pressure, or below if desirable.

This Valve is constructed with an independent diaphragm to which is connected the actuating pressure. The pressure to govern the operation of Valve is taken from the low-pressure heating main, some distance from the Valve itself. From this point a connection is run and connected with diaphragm of regulator, as shown in illustration.

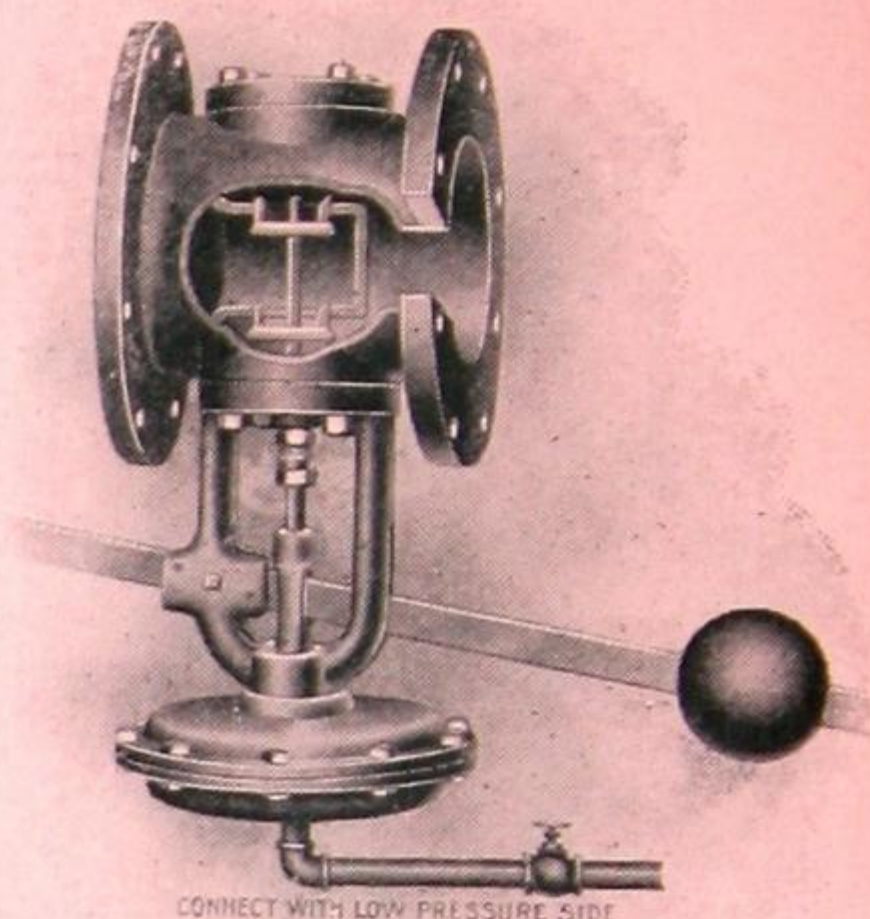


Fig. 67

PRICE LIST

Size	Price	Face to Face	Weight	Code
1 x 2	\$ 33.00	6 $\frac{3}{4}$	77	Xanthia
1 $\frac{1}{4}$ x 2 $\frac{1}{2}$	43.00	6 $\frac{3}{4}$	83	Xahia
1 $\frac{1}{2}$ x 3	54.00	7 $\frac{1}{8}$	86	Xebec
2 x 4	72.00	6 $\frac{1}{2}$	88	Xenody
2 $\frac{1}{2}$ x 5	96.00	7 $\frac{3}{4}$	91	Xerades
3 x 6	126.00	8 $\frac{3}{16}$	115	Xinobe
4 x 6	158.00	10 $\frac{1}{2}$	135	Xibess
4 x 8	190.00	11	152	Xipoid
5 x 10	242.00	13 $\frac{1}{2}$	324	Xibon
6 x 12	325.00	15	390	Xyst
7 x 14	400.00	15 $\frac{1}{2}$	450	Xister
8 x 16	500.00	17 $\frac{1}{2}$	500	Xerxes

Standard sizes up to and including 2 x 4 small ends screwed, large ends flanged—all other sizes flanged with both ends.

Companion flanges furnished with all flanged valves.

High Pressure Regulator

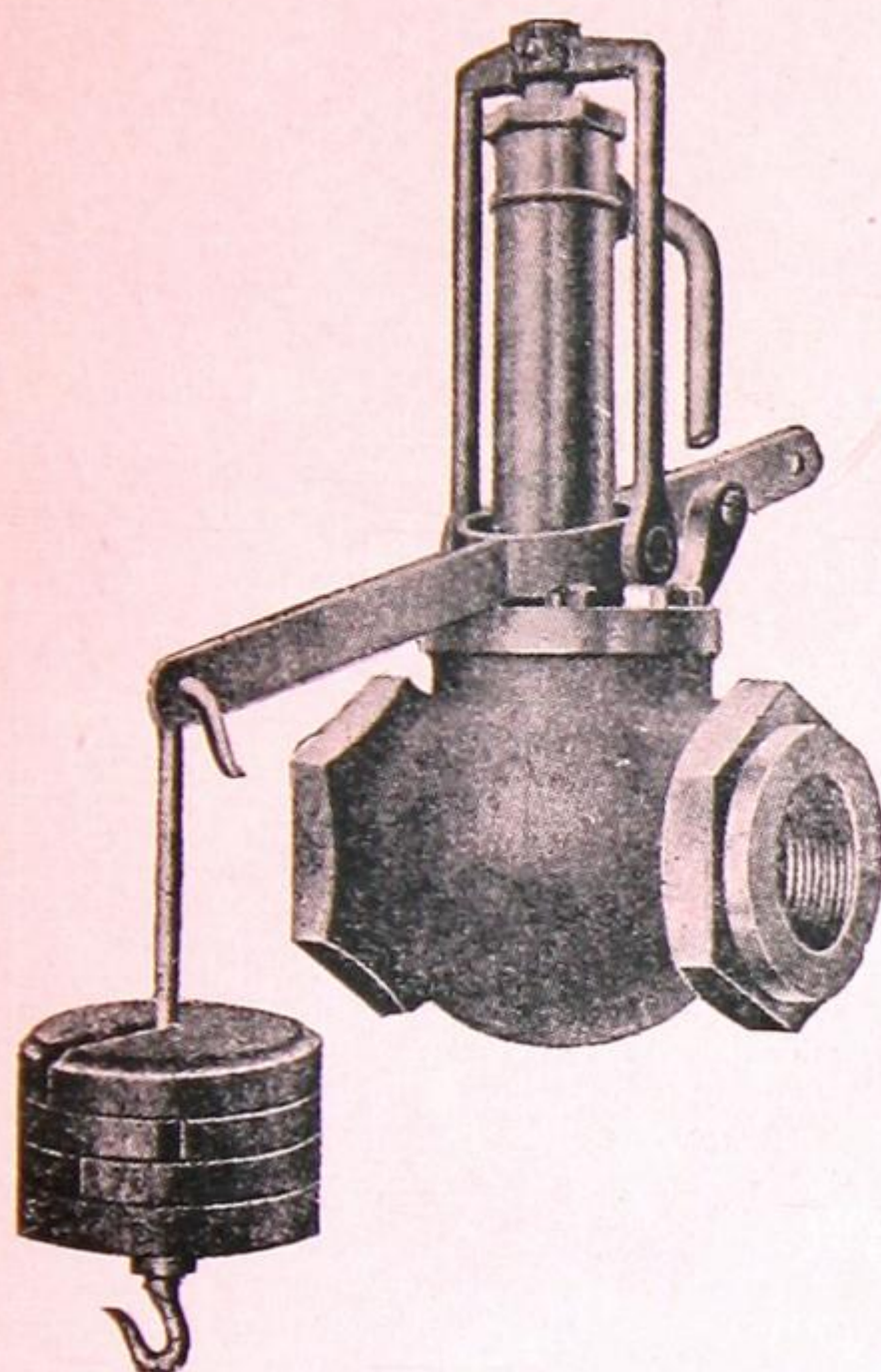


Fig. 168

This regulator will reduce any initial pressure of 200 lbs., or less, to any delivery pressure not less than 25 lbs., on the low pressure side.

The regulator is made with and without dash pot; the dash pot is not necessary unless there will be frequent variation in pressure on the high pressure side of the regulator.

PRICE LIST

Size	Valve without Dash Pot	Extra for Dash Pot	Face to Face	Weight	Code
$\frac{1}{2}$	\$20.00	\$ 5.00	4	20	Wingolf
$\frac{3}{4}$	20.00	5.00	4	20	Winningly
1	22.00	5.00	4	20	Winnkauf
$1\frac{1}{4}$	24.00	5.00	$4\frac{3}{4}$	20	Winnowed
$1\frac{1}{2}$	25.00	5.00	7	30	Winnowing
2	30.00	6.00	7	55	Wincelaffe
$2\frac{1}{2}$	35.00	7.00	$8\frac{1}{2}$	65	Winteranie
3	40.00	8.00	$9\frac{1}{2}$	80	Winterbier
$3\frac{1}{2}$	50.00	8.00	$9\frac{1}{2}$	95	Winterdock
4	60.00	10.00	11	95	Wintered
5	75.00	15.00	13	150	Winterfeld
6	100.00	20.00	14	220	Winterfest

All sizes screwed both ends except 6" which is flanged both ends, and companion flanges are furnished with 6" valve.

“Universal” Steam Trap

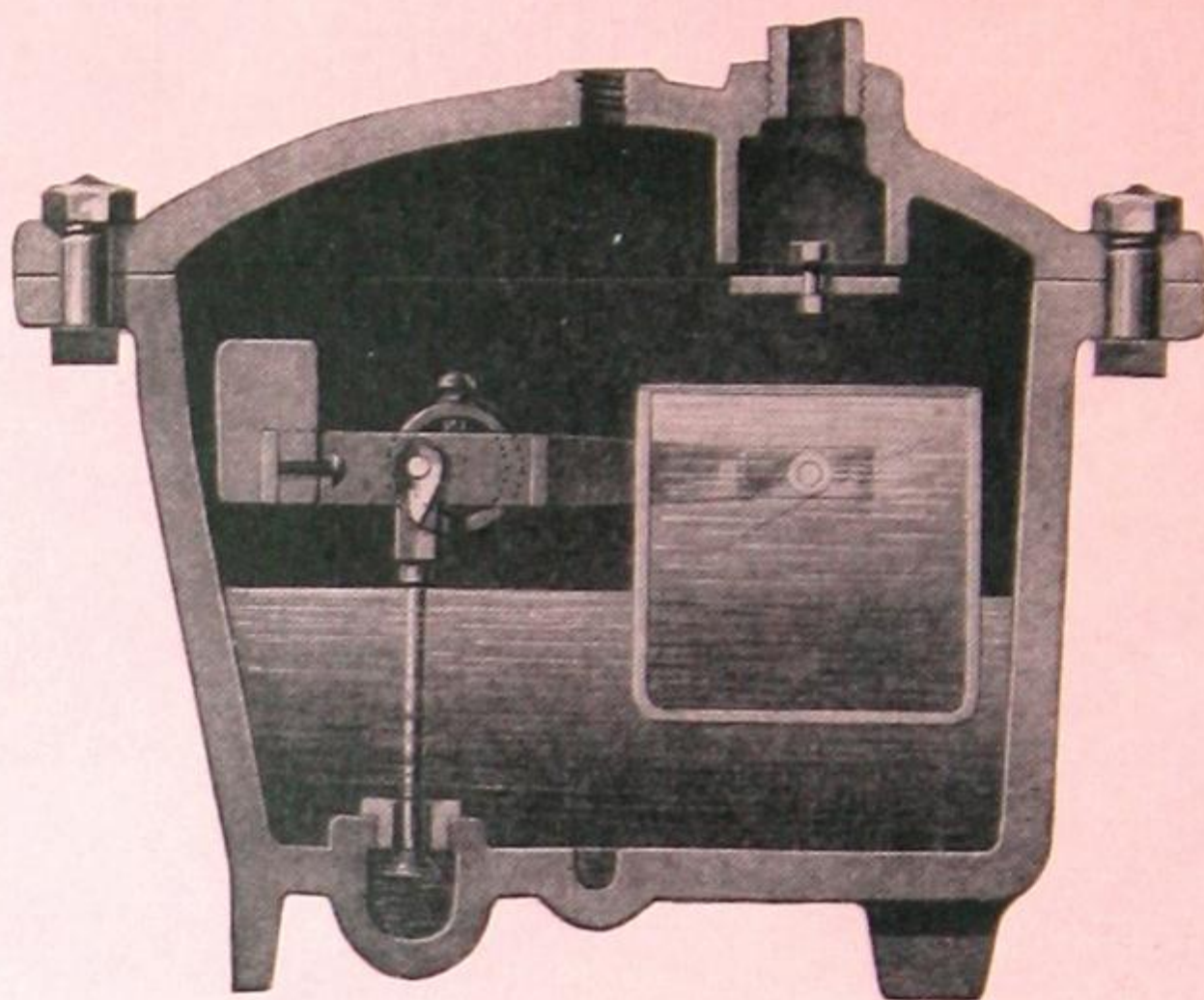


Fig. 169

Designed for any pressure up to 150 lbs. Traps for pressures above 150 lbs. are made with heavier bodies and slightly smaller valves.

CAPACITIES AT $\frac{1}{2}$ TO 1 LB. STEAM PRESSURE

Size No.	Size Inlet and Outlet	Dia. Valve Opening	Capacity Pounds Water Per Hour	Capacity in Sq. Ft. Direct Radiation	Capacity in Lineal Feet of 1" Pipe.	Capacity in Lineal Ft. of 1 $\frac{1}{4}$ " Pipe.	Capacity in Sq. Ft. of Blower Coils	Capacity in Lin. Ft. 1" Pipe Blower Coils	Capacity Lin. Ft. 1 $\frac{1}{4}$ " Pipe Blower Coils	Weight	Price List
1	$\frac{3}{4}$	$\frac{3}{8}$	450	1200	3600	2560	200	600	460	150	\$22.00
2	1	$\frac{1}{2}$	1000	3000	9000	6900	500	1500	1150	200	32.00
3	1 $\frac{1}{4}$	$\frac{5}{8}$	1500	4500	13500	10350	750	2250	1725	220	45.00
4	1 $\frac{1}{2}$	$\frac{3}{4}$	2160	6300	18900	14490	1050	3150	2415	250	63.00
5	2	$\frac{7}{8}$	2800	8400	25200	19300	1400	4200	3220	350	80.00
6	2 $\frac{1}{2}$	1	4000	12000	36000	27600	2000	6000	4600	460	100.00

Anderson Model "D" Steam Trap

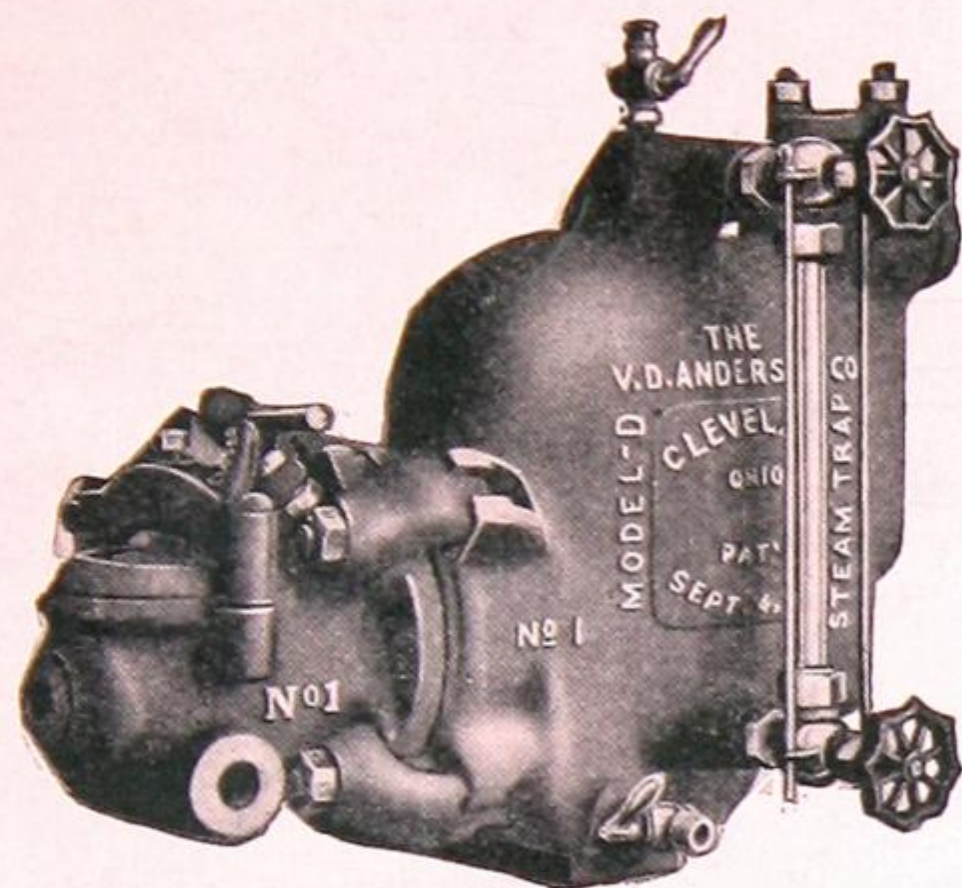


Fig. 57

The Standard Valve Opening is adapted for pressures from 150 lbs down to 30 lbs. The Low Pressure Valve Opening is for pressures from 30 lbs. down. For pressures below 10 lbs. or above 150 lbs. special valve openings can be supplied.

In ordering, state maximum pressure at the Trap.

PRICE LIST

Number of Trap...	1	2	3	4	5	6	7
Fig. 57.....Each	26.50	28.50	36.00	43.00	60.00	82.00	132.00
Size of Pipe Con- nection, inches..	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Maximum Dis- charge per hour in lbs.....	1,500	2,400	4,000	5,600	8,000	12,000	24,000
Greatest No. of Sq. Ft. of Sur- face that should be applied.....	1,000	1,600	2,600	4,700	7,000	10,000	20,000
Greatest No. of Lineal Feet of 1-inch Pipe Sur- face that should be applied.....	3,000	5,000	8,000	14,000	20,000	30,000	60,000
Shipping Weight, boxed, lbs.....	110	114	195	211	335	394	640

Marsh Duplex Waterseal Low Pressure Blast Trap

For Direct or Indirect Coils or any Location Where Large Quantities of Water are to be Discharged.

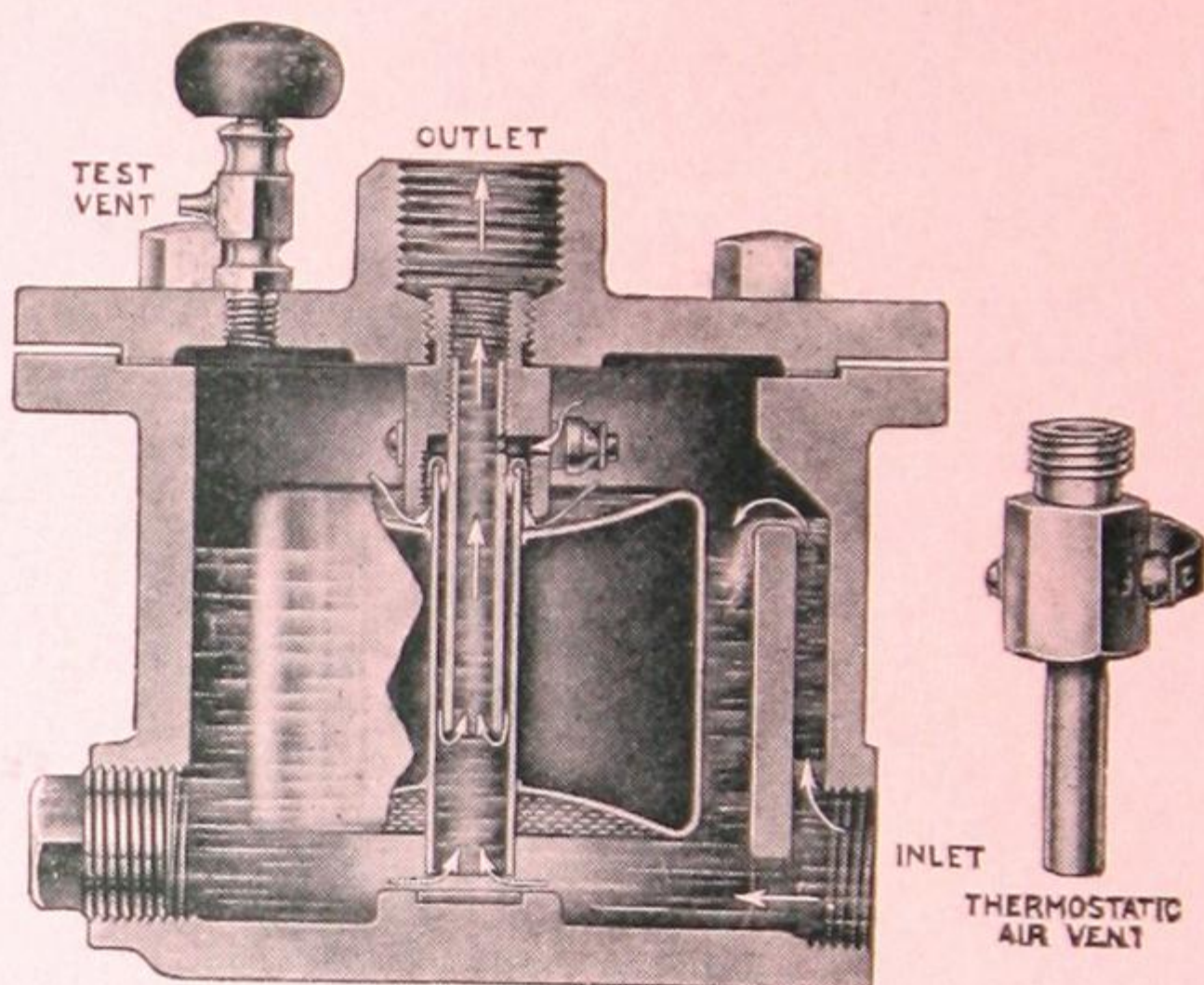


Fig. 170

For Pressures From Below Atmosphere to 25 Lbs.

CAPACITIES

Size of Trap	Square Feet C. I. Direct Radiation	Pounds of Water Per Hour
$\frac{3}{4}$	2800	700
1	4000	1000
$1\frac{1}{4}$	7200	1800
$1\frac{1}{2}$	14000	3500

Prices on application.

Marsh Medium Pressure Steam Trap

For Pressures up to 100 Pounds on Drips, Coils and Cooking Apparatus

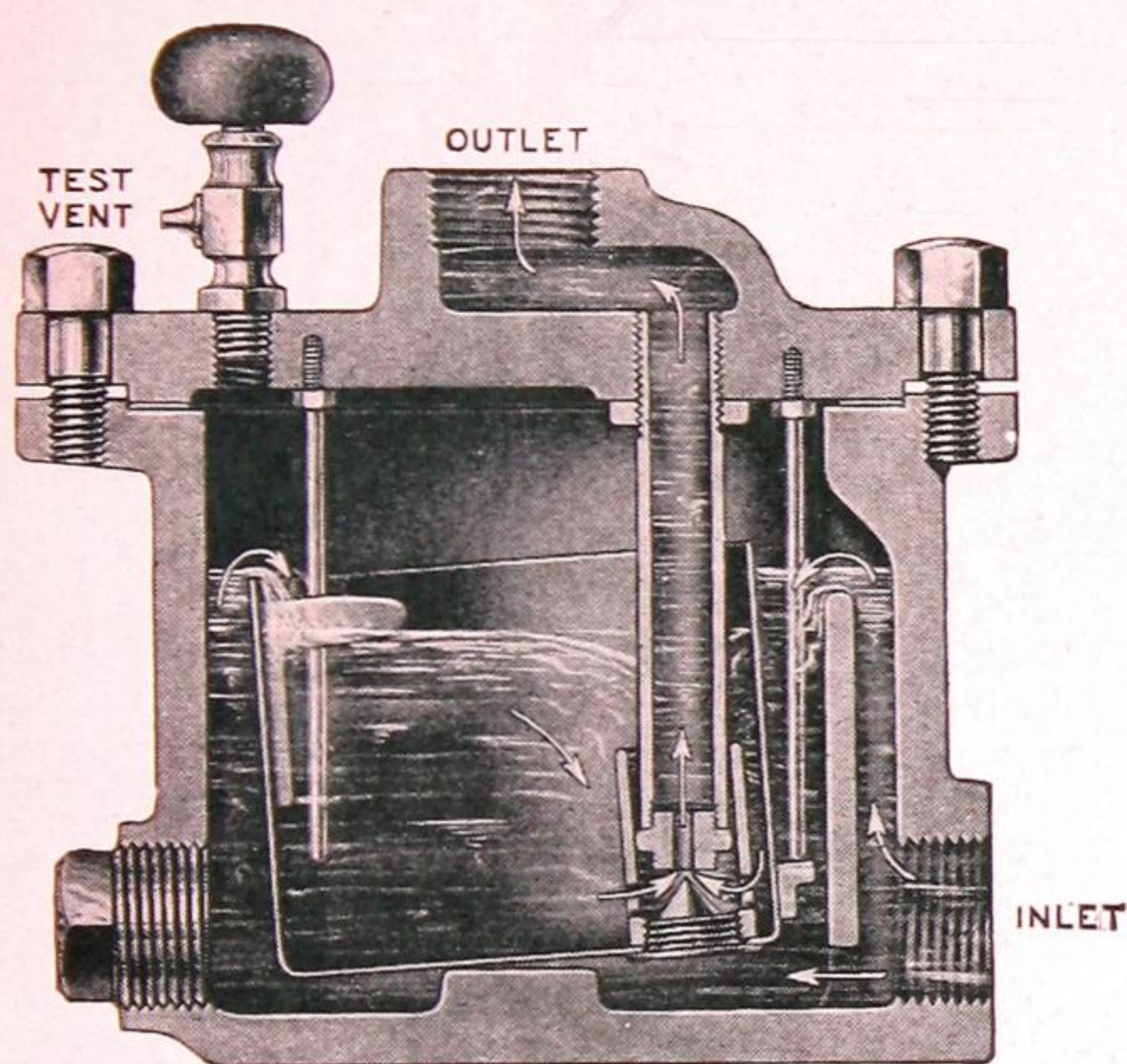


Fig. 170 A

For Pressures up to 100 Lbs.

CAPACITIES

Size of Trap	Pounds of Water Per Hour at 75 Pounds Pressure
$\frac{3}{4}$	500
1	750
$1\frac{1}{4}$	1500
$1\frac{1}{2}$	3000

Prices on application.

Marsh Automatic Syphon Return Trap

For the Residence Vapor System

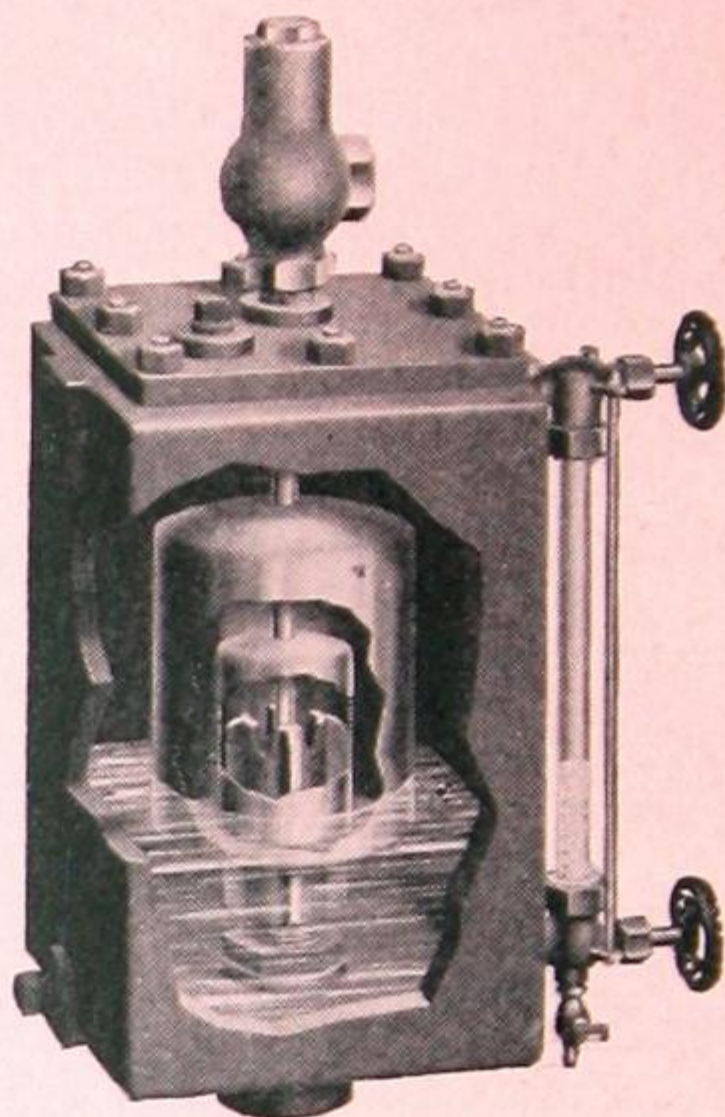


Fig. 56

Returns water of condensation back to the boiler noiselessly and positively.

CAPACITIES

No. of Trap	Square Feet of Radiation	Pounds of Water Per Hour	Inlet	Outlet	Steam Inlet
1	2500	625	1 $\frac{1}{4}$	1 $\frac{1}{4}$	$\frac{3}{4}$
2	4000	1000	1 $\frac{1}{4}$	1 $\frac{1}{4}$	$\frac{3}{4}$
3	6000	1500	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1
4	8000	2000	2	2	1

Prices on application.

Marsh No. 5 Duplex Water Seal Float Trap

Especially Adaptable for Drips and Large Coils
STRAIGHTWAY OR ANGLE PATTERN

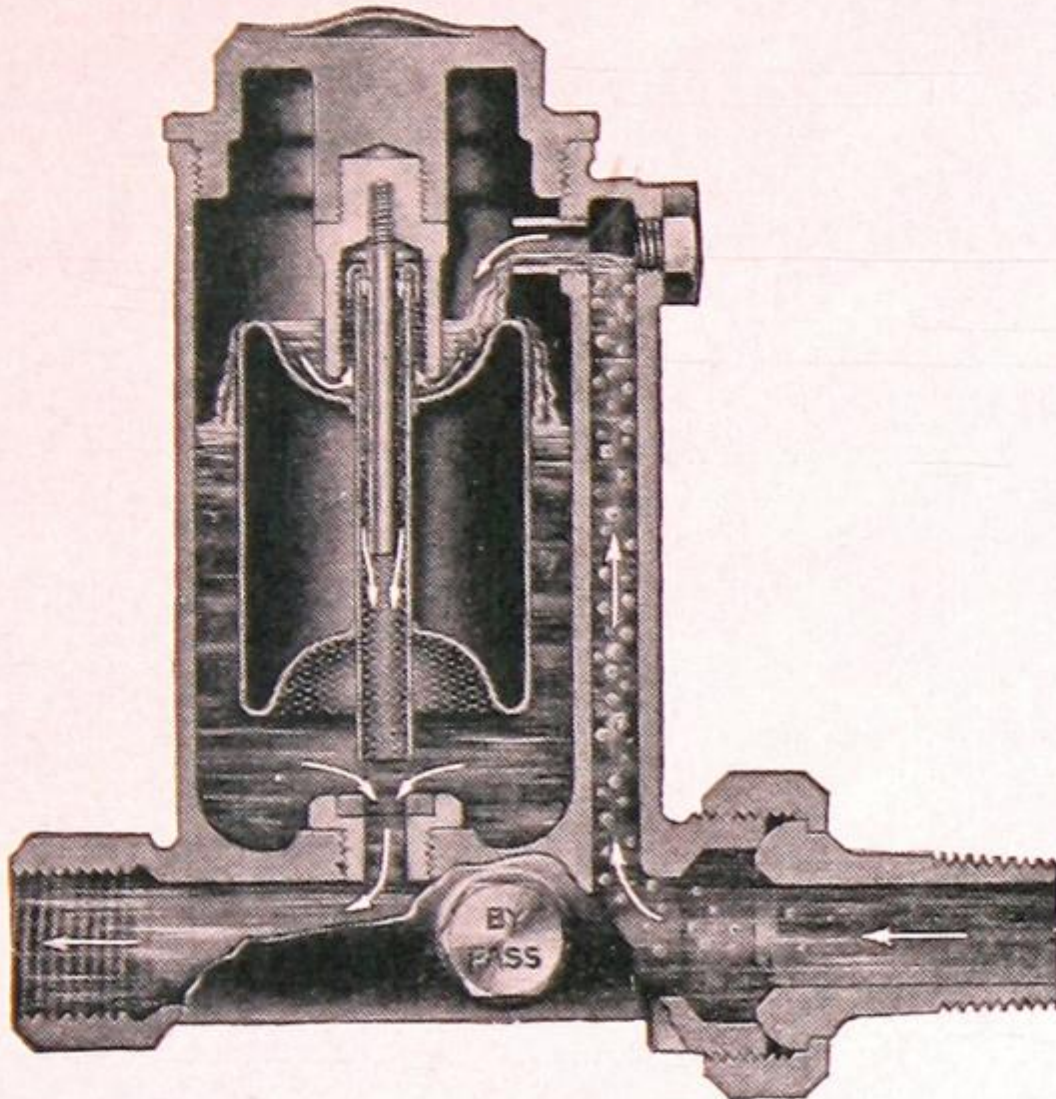


Fig. 171

With large free port for passage of water and air.
Sealed all round by water against escape of steam.
Automatic in action by flotation.

Water entering the trap flows into cap at top of float forming a seal preventing steam from passing through the trap—but permitting the automatic escape of air at all times.

Duplex, cup-shaped float is reversible and cannot be inserted improperly.

The "Signal" opening warns the operator to close the special By-Pass valve when the trap is blown out and thoroughly cleared of all dirt, grit and sediment.

Heavy cast brass construction with renewable seat.

Adjusted and tested at the factory for all varying steam pressures up to 15 pounds and shipped ready for installation.

CAPACITIES

Size of Trap	Square Feet C. I. Radiation
$\frac{1}{2} \times \frac{1}{2}$	400
$\frac{3}{4} \times \frac{3}{4}$	800
1 x 1	1600

Prices on application

Marsh Thermostatic Traps

Angle, Straightway, Offset Globe, R. H. or L. H. Corner Patterns

For use on the return end of radiators or coils of any type Steam System.

Adjusted and tested on steam under actual working conditions at the factory and shipped ready for installation to work automatically from below atmosphere on up to 15 pounds steam pressure.

When so specified can be supplied for higher pressures on up to 60 pounds steam for Cookers, Sterilizers, Driers, etc.

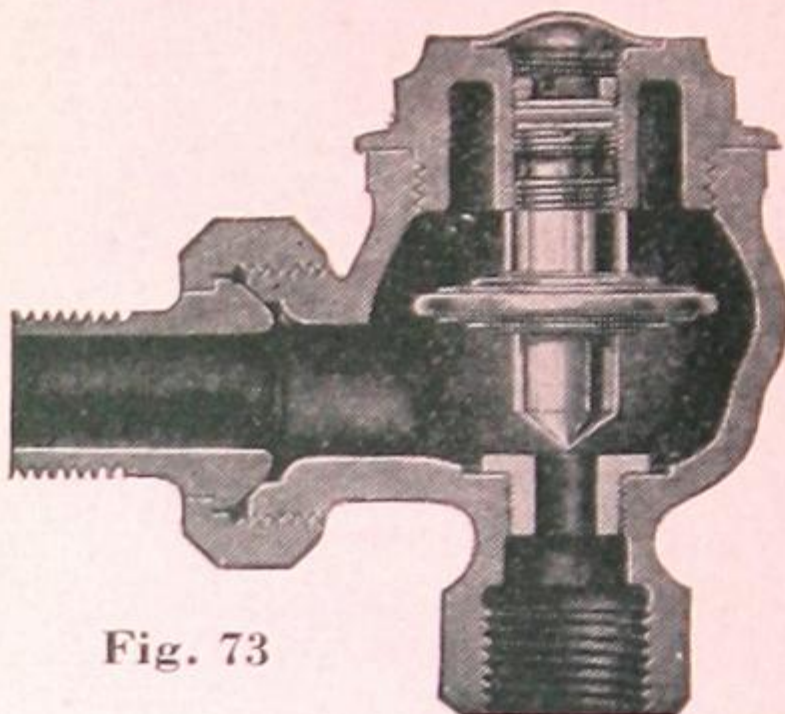


Fig. 73

MARSH No. 1 REFLUX

**The Most Economical-Practical
and Efficient Trap for the Average
Sized Unit.**

Marsh Reflux Traps assure full efficiency of Radiator, Coil and System. Automatically discharge air and the water of condensation as fast as it is formed.

The trap closes the instant steam or vapor strikes the thermostatic diaphragm. Vapor or steam cannot pass through the trap, therefore every atom of heat is given off in the radiator or coil.

Just one movable part—nothing loose to rattle, chatter or make a noise.

Neat in appearance, handsomely finished and heavily nickel-plated.

CAPACITIES

Size of Trap	Square Feet C. I. Radiation
$\frac{1}{2} \times \frac{1}{2}$	150
$\frac{3}{4} \times \frac{3}{4}$	300
1 x 1	600

MARSH No. 2 REFLUX

**The Economical-Practical and Efficient Trap for Both Small
and Large Units.**

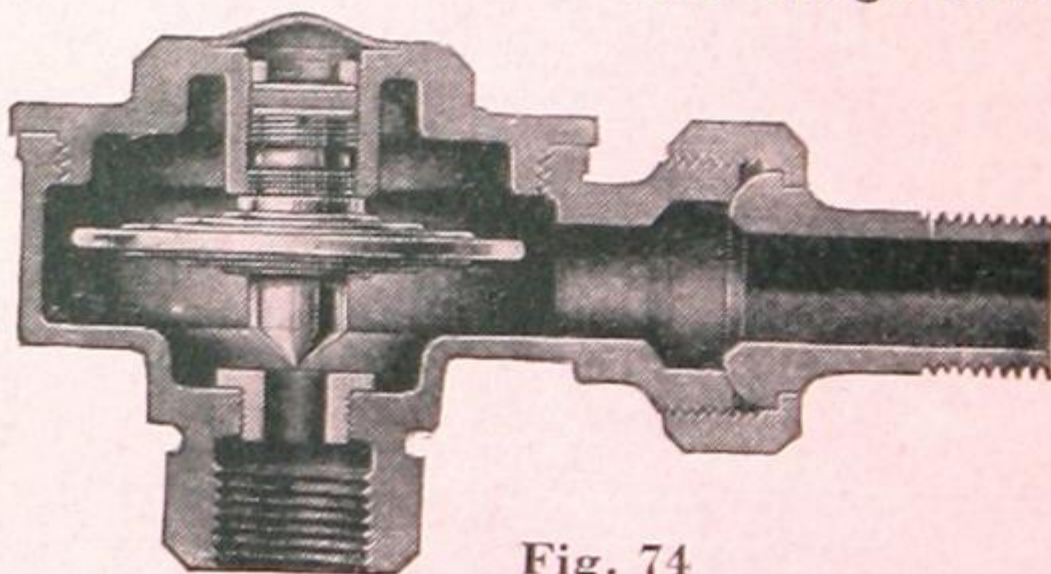


Fig. 74

Marsh Reflux Traps are all metal construction including heavy cast brass body handsomely nickel-plated and with extra heavy special tail piece.

The one movable part—a genuine phosphor bronze non-collapsible Thermostatic Diaphragm—contains the combination of volatile fluids so balanced as to at all times distinguish

between air and water of condensation and vapor or steam. So corrugated and constructed to eliminate the slightest possibility of rupture from alternate expansion and contraction.

CAPACITIES

Size of Trap	Square Feet, C. I. Radiation
$\frac{1}{2} \times \frac{1}{2}$	200
$\frac{3}{4} \times \frac{3}{4}$	500
1 x 1	1000

Prices on application.

Marsh Thermostatic Traps

Angle, Offset Globe, R. H. or L. H. Corner Patterns

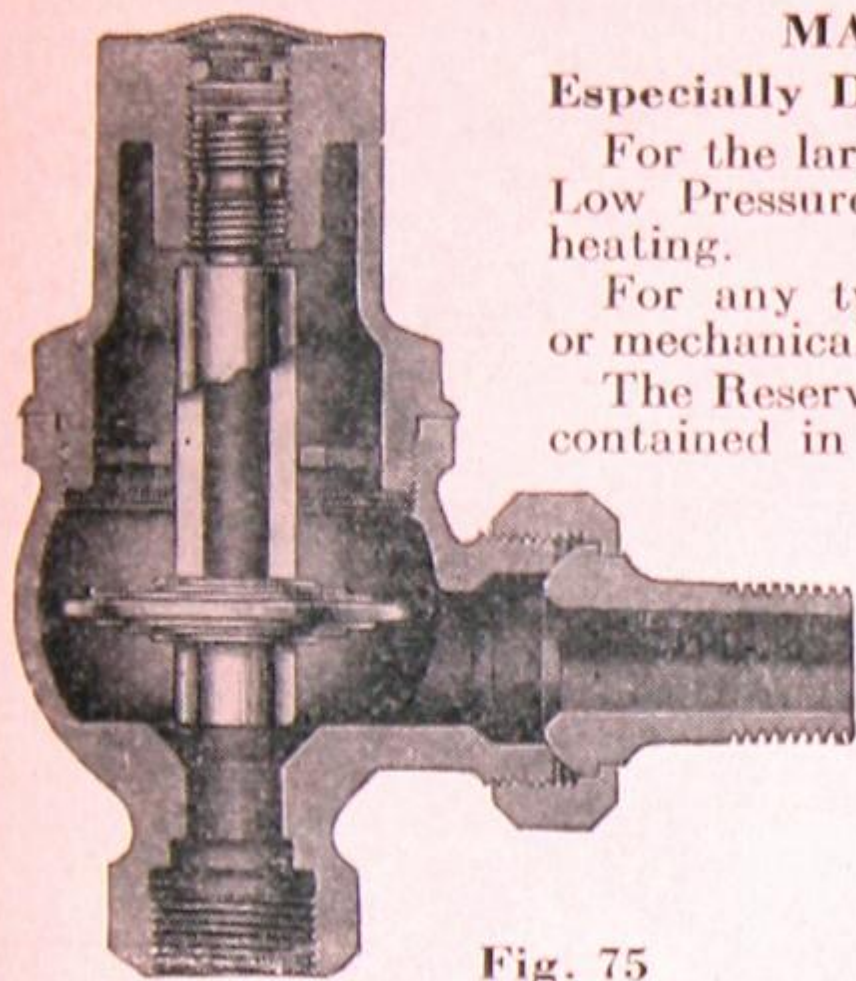


Fig. 75

MARSH No. 3 REFLUX

Especially Designed for the Larger Units.

For the larger Radiators, Coils and Units of Low Pressure, Vapor or Vacuum Systems of heating.

For any two-pipe heating system—gravity or mechanical suction on the return line.

The Reservoir, which is a special feature not contained in any other Trap on the market, is a very essential one, since it acts as a cushion to relieve the force of the expanding member and further insures the life of the Trap.

This Trap for the larger units together with the Marsh Reflux No. 1 and No. 2 for the smaller units makes an ideal installation.

CAPACITIES

Size of Trap	Sq. Ft. C. I. Radiation
$\frac{1}{2} \times \frac{1}{2}$	300
$\frac{3}{4} \times \frac{3}{4}$	600
1×1	1200

MARSH WATER PIPE LINE RELIEF VALVE



Fig. 88

Automatically vents all air but closes against discharge of water. Permits the air to escape while the line or tank is being filled with water. Admits a sufficient volume of air into the system to keep the water fresh and pure.

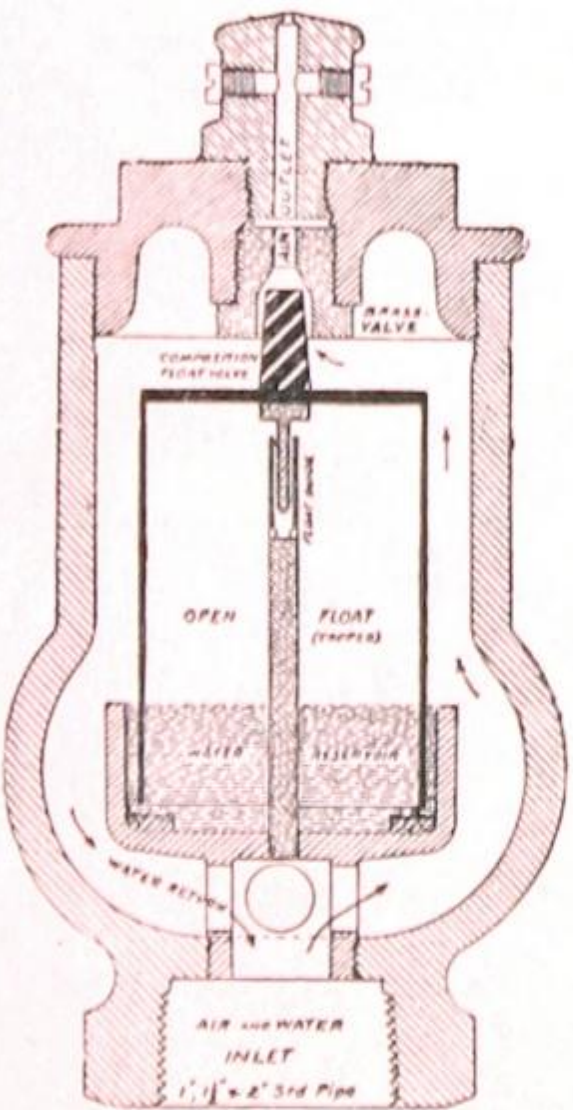


Fig. 88 A

Prices on application.

Marsh No. 5 Thermodisk Rapid Vent

Rushes All the Air Out At All Temperatures and Keeps it Out.

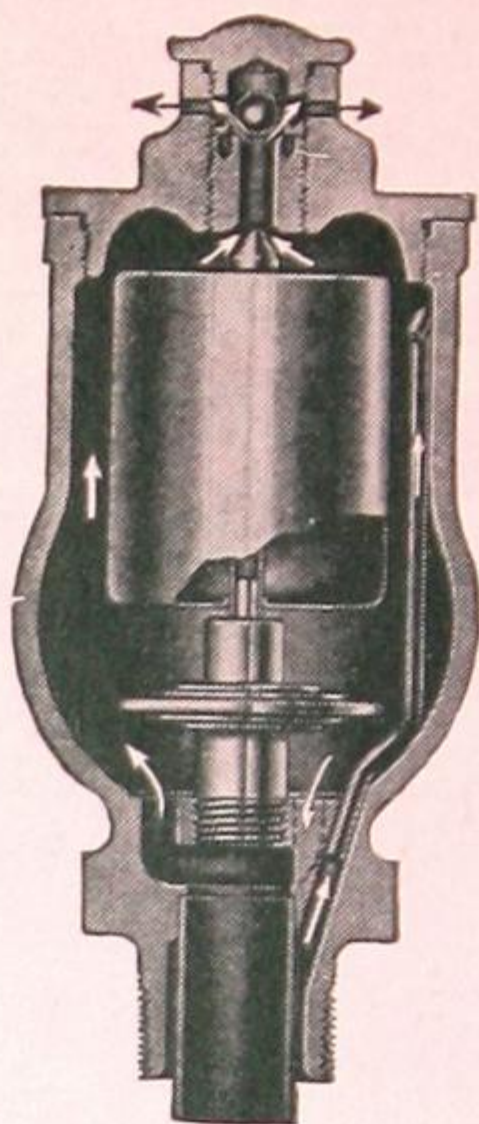


Fig. 76

The most popular—general purpose—suitable for any job—vent on the market.

Works just right on any low pressure system of steam heating.

Gives new life to the old air-bound heating plant.

Assures longest life and satisfactory operation of the new installation.

A heavy cast brass body, sensitive, rapid vent for any location where a large volume of air is to be rapidly vented and where steam, vapor and water is to be kept in.

And the vacuum top keeps the air out.

Adjusted and tested at factory and shipped ready for installation, to work automatically from below atmosphere on up to 10 pounds steam pressure.

Made in two sizes—one with either $\frac{1}{4}$ -inch or $\frac{3}{8}$ -inch male bottom connection—and the larger size with either $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch male bottom connection.

Marsh No. 6 Thermodisk Quick Vent

CANNOT
BLOW
SHUT ON
AIR PACK

HEAVY
CAST
BRASS
BODY

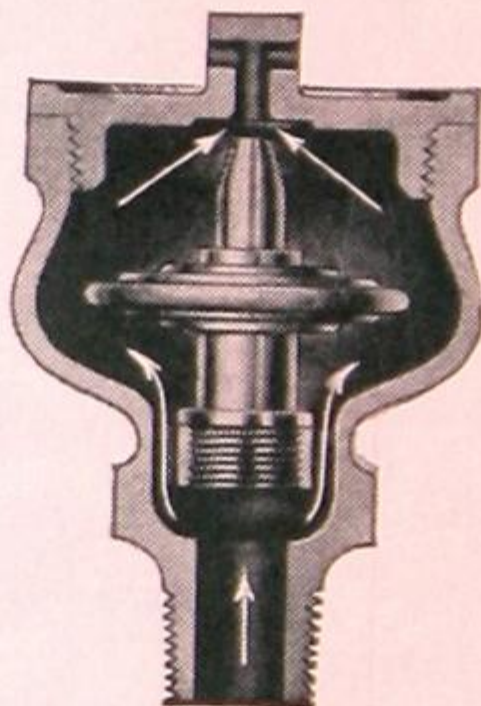


Fig. 77

VENTS
AT THE
SLIGHTEST
PRESSURE

LARGE
PORT FOR
ESCAPE
OF AIR

CLOSES INSTANTLY FOR STEAM

For installation at any high point where large volume of air must be rapidly vented.

Constructed without float, does not close against water.

Adjusted and tested at factory to operate automatically at all steam pressures up to 10 pounds.

Made $\frac{1}{4}$ -inch and $\frac{3}{8}$ -inch male bottom connection.

Prices on application.

Marsh No. 7 Air Eliminator

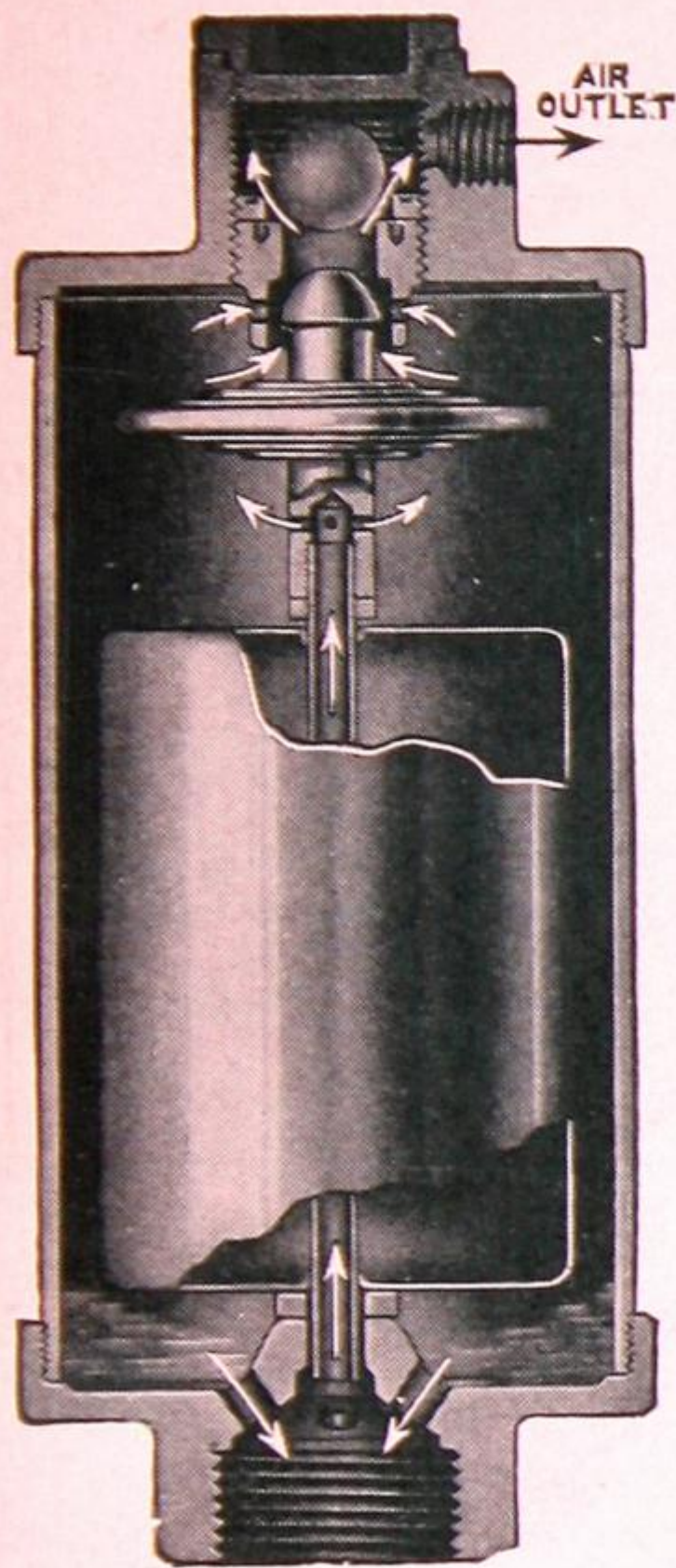


Fig. 78

THE BIG FREE VENT

For Air at All Temperatures
FOR THE RETURN MAIN

Free and unlimited vent of all air, hot or cold, cannot water log, does not spit or leak water, and closes instantly for steam or vapor.

Adjusted and tested at factory and shipped ready for installation to work automatically from below atmosphere on up to 10 pounds steam pressure.

Made in $\frac{3}{4}$ " and 1" male bottom connection.

Marsh Original Automatic Steam Air Valve

FOR DIRECT STEAM RADIATORS

A thoroughly reliable automatic air valve, made to supply the demand for a lower priced valve. Removes all air from the heating system, closes for steam by expansion and water by flotation.

Made in sizes $\frac{1}{8}$ " and $\frac{1}{4}$ ".

Prices on application.



Fig. 79

Marsh Automatic Air Valves



Fig. 82

MARSH PAUL TOP ADJUSTMENT AIR LINE VALVE

For those who prefer the outside adjustment this valve is guaranteed to be superior in every way to the cheap valves of this style on the market. Extra large air passage permits air to be expelled from the radiator very rapidly. No resistance of steam by cold air bound radiators.

Made in sizes $\frac{1}{8} \times \frac{1}{4}$ ", $\frac{1}{4} \times \frac{1}{4}$ ", $\frac{1}{4} \times \frac{3}{8}$ ", $\frac{3}{8} \times \frac{3}{8}$ ", $\frac{3}{8} \times \frac{1}{2}$ ", $\frac{1}{2} \times \frac{1}{2}$ ".



Fig. 81

MARSH No. 4 L-S LONG JACKET LOCK AND SHIELD AIR VALVE

For direct steam radiators. This valve, owing to loose key adjustment, should receive preference on public installations, schools, etc. A double passage long shell valve with heavy expanding member which cannot buckle or get out of line.

Made in sizes $\frac{1}{8}$ " and $\frac{1}{4}$ ".



Fig. 84

No. 11 MARCO JUNIOR

A medium priced non-adjustable air valve for low pressure systems at pressures up to 10 lbs. Vents the radiators of all air, hot or cold, closes instantly for steam and the independent open float prevents spitting or leakage of water.

Size $\frac{1}{8}$ ".

Prices on application

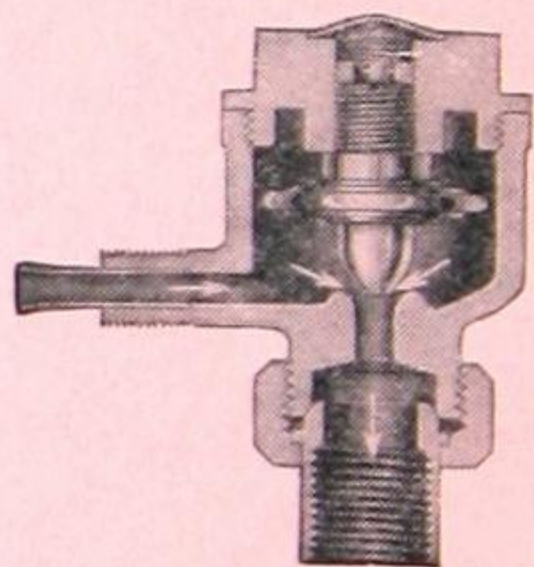


Fig. 83

MARSH No. 3 THERMODISK AIR LINE VALVE

No pocket for water. Dry air line. No springs. Just one movable part $\frac{3}{16}$ " diameter. Operates automatically with or without pump. Extra heavy solid cast, brass body. Automatically passes all air, hot or cold, into the return air line, but closes the instant steam has circulated through the entire heat unit and up to the valve. Size $\frac{1}{8} \times \frac{1}{4}$ ".

MARVAL SYPHON AUTOMATIC AIR VALVE

For Direct Steam Radiators. Vents all air at all temperatures. Closes by thermostatic action for steam and the Buoyant Float closes the valve. promptly for water. For one pipe gravity steam heating systems up to 10 lbs. pressure. Size $\frac{1}{8}$ ".



Fig. 71

MARSH No. 2 THERMODISK SY- PHON AIR AND VACUUM VALVE All Metal

For direct steam radiators. Vents all air at all temperatures and vacuum top keeps it out. Air cannot enter system through the valve, assures quick and thorough circulation. Prevents radiator from rapid cooling and saves labor and fuel. Adjusted at the factory, shipped ready for installation. Size $\frac{1}{8}$ ".

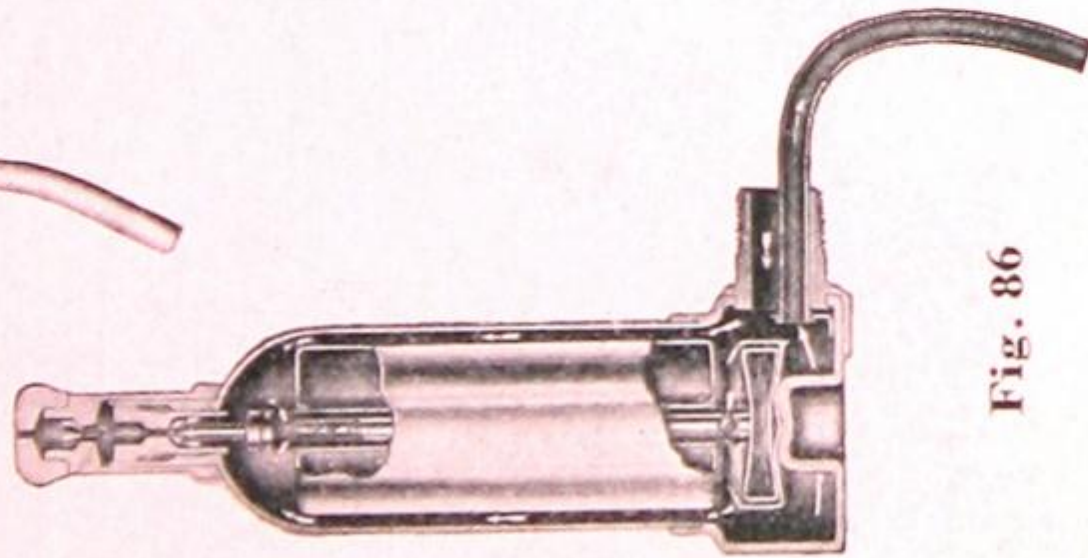
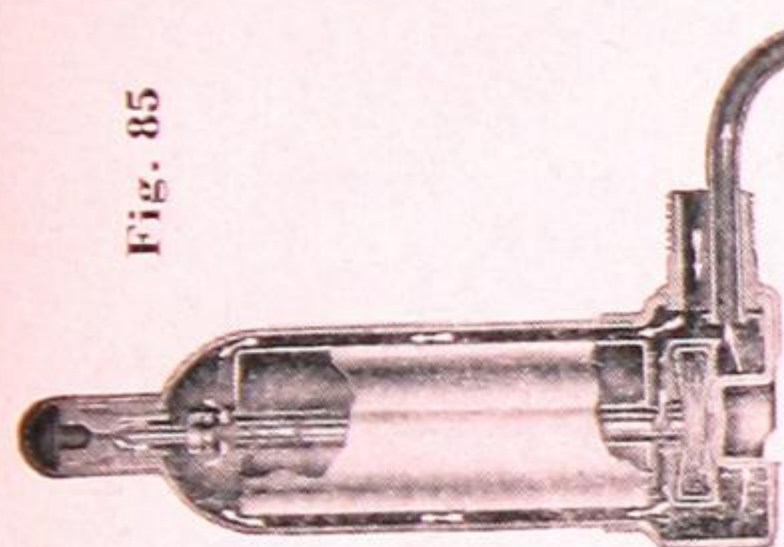


Fig. 86

Prices on Application

Fig. 85



MARSH No. 1 THERMODISK SY- PHON AIR VALVE—All Metal

For direct steam radiators. Vents rapidly and at any temperature all the air, closes instantly for steam and shuts off tight on water. Assures efficiency of radiator and all the steam. Absolutely automatic, adjusted at the factory, shipped ready for installation. Size $\frac{1}{8}$ ".

MARSH No. 4 THERMODISK SY- PHON AIR VALVE—All Metal

For direct steam radiators. Medium priced, durable, dependable. Vents all the air at all temperatures and maintains the radiator at full efficiency. Absolutely automatic, adjusted at the factory, shipped ready for installation. Cannot waterlog. Size $\frac{1}{8}$ ".

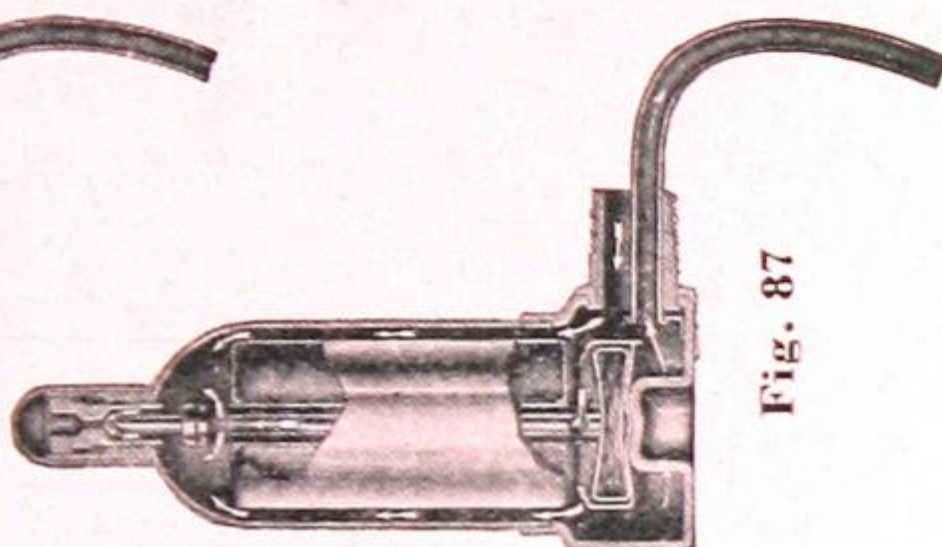


Fig. 87

Prices on application

Marsh Radiator Valves

For Steam

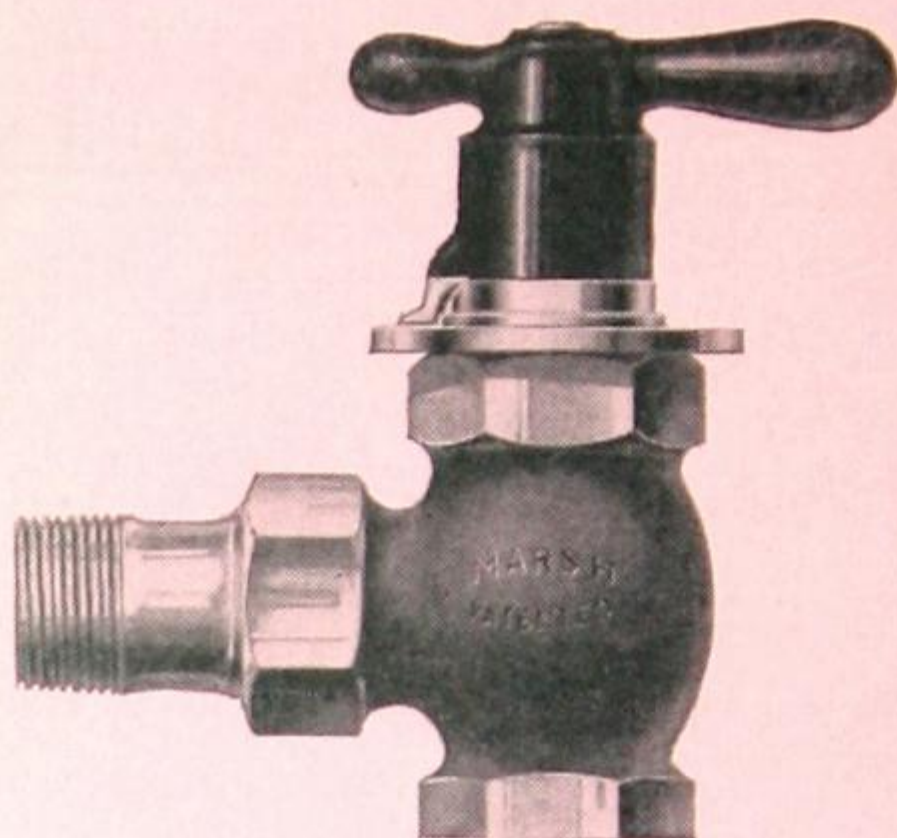


Fig. 131

Marsh Modulated Angle Valve with Union, Oval Wheel or Lever Handle.

Size				
$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
3.70	4.30	5.10	6.40	8.40

Nickel plated all over.

Corner or back offset patterns same list.

Marsh Packless Globe or Angle Valve with Union, Oval Wheel.

Size					
$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
3.70	4.30	5.10	6.40	8.40	13.60

Nickel plated all over

Corner or back offset patterns, same list. Made also lock and shield pattern.

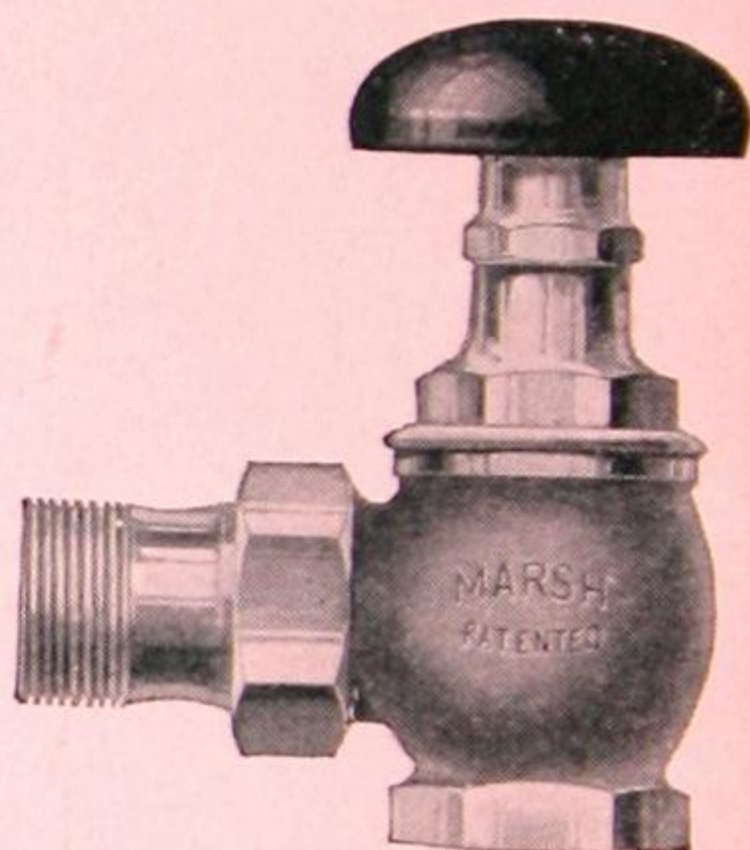


Fig. 133

Marsh Cone Disc Modulated Angle Valve with Union, Oval Wheel.

Size					
$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
3.70	4.30	5.10	6.40	8.40	13.60

Nickel plated all over

Made also with lever handle. For cone disc packless angle valve, use same list.

Note—Globe, corner and back offset valves, both modulated and packless are made with flat disc only.

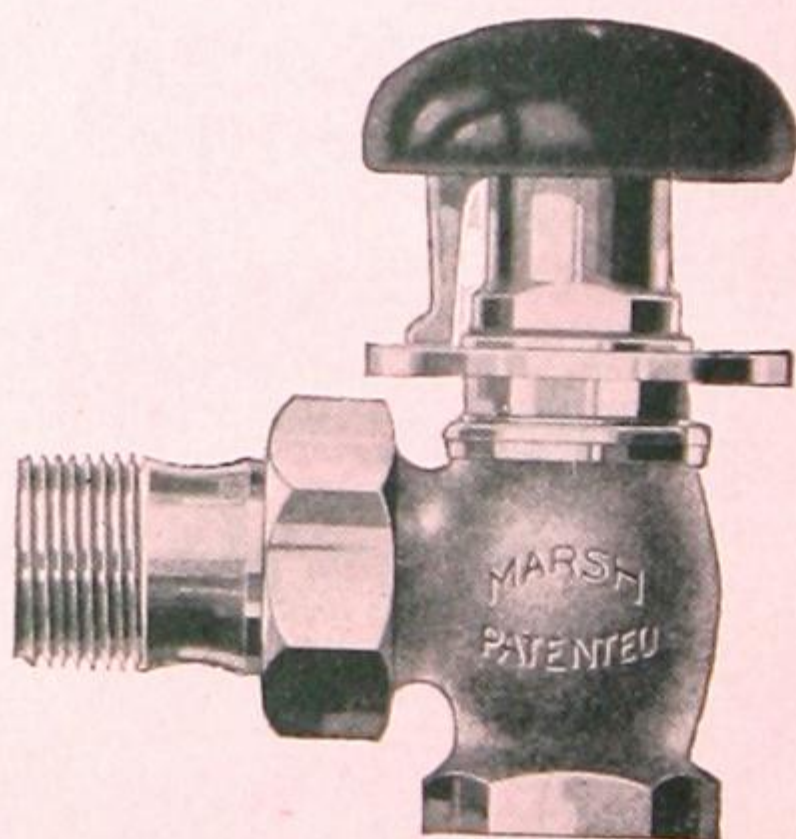


Fig. 147

Marsh Radiator Valves
For Water

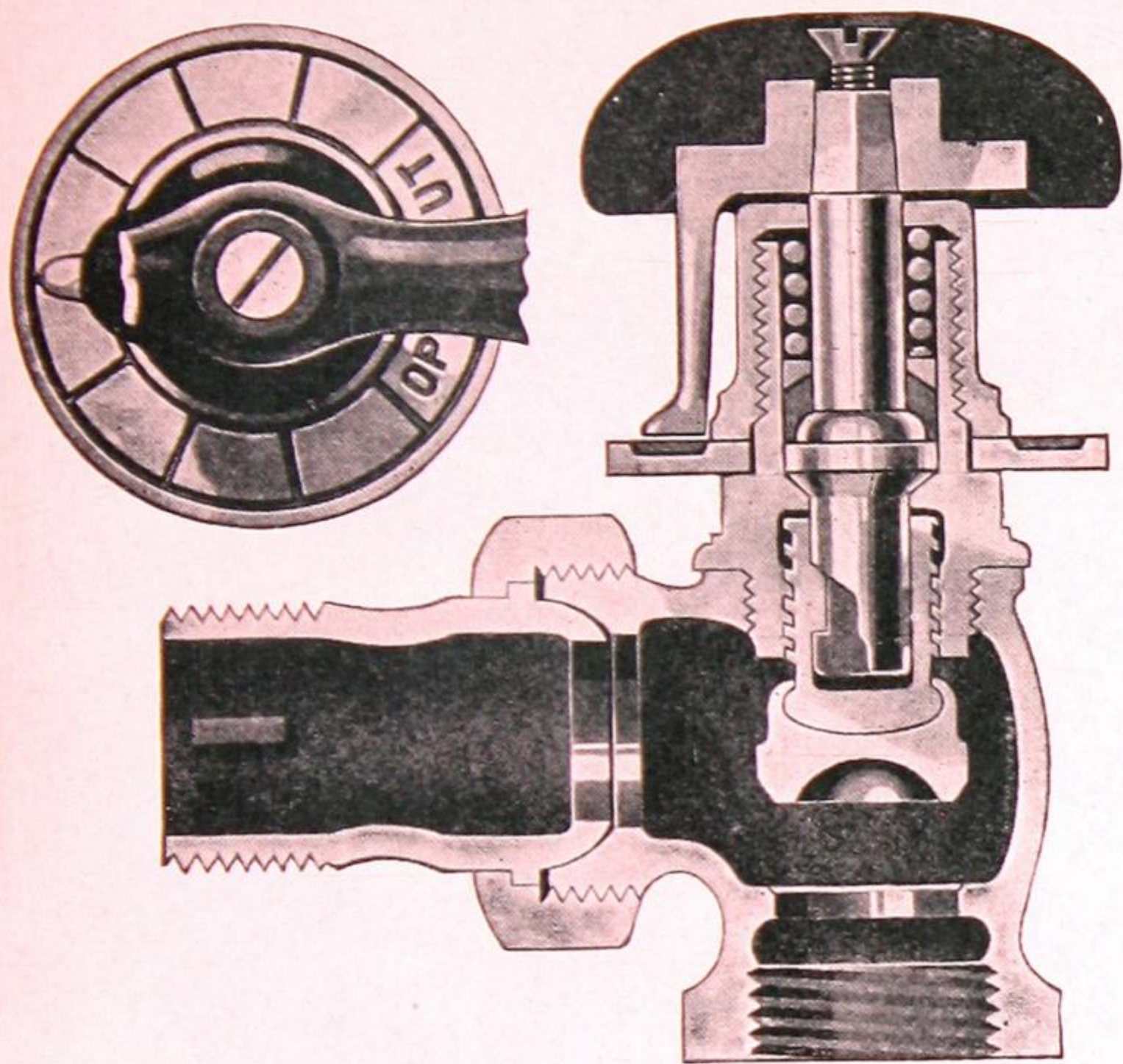


Fig. 139

MARSH GRADUATED ANGLE WATER VALVE WITH UNION,
OVAL WHEEL

Size				
1/2	3/4	1	1 1/4	1 1/2
3.70	4.30	5.10	6.40	8.40

Nickel plated all over.

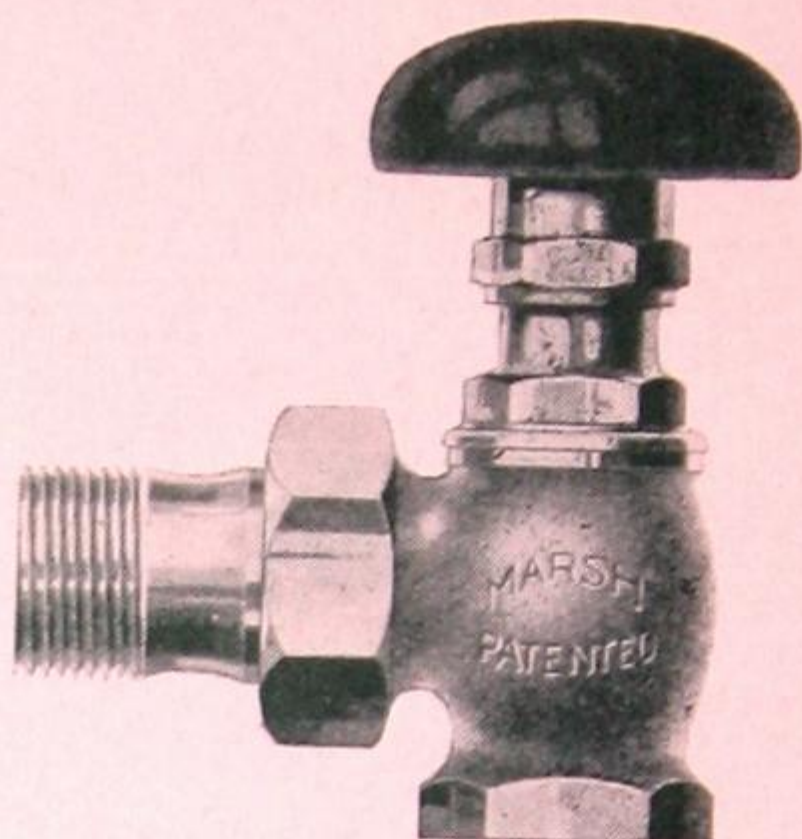
Made also lever handle and lockshield patterns

MARSH UNION ELBOWS

Size					
1/2	3/4	1	1 1/4	1 1/2	2
1.75	2.00	2.50	3.30	4.25	7.20

Nickel plated all over.

Marsh Radiator Valves For Water



Marsh Packless Angle Water Valve with Union, Oval Wheel.

Size

$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
3.25	3.70	4.50	5.75	7.30	12.00

Nickel plated all over

Made also lock and shield pattern.

Fig. 137

HOT WATER COMPRESSION AIR VENTS

Compression Nickel Plated Wood Wheel, per dozen.....	Prices on Application
Compression Nickel Plated Metal Wheel, per dozen.....	
Compression Nickel Plated Loose Key, per dozen.....	

PET COCKS—Finished

Size.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
T. handle, single thread, each.....	.40	.45	.50	.60
L. handle, single thread, each.....	.55	.60	.65	.75
T. handle, female both ends, each....	.65	.70	.85	1.10
L. handle, female both ends, each....	.80	.85	1.00	1.25

COMPRESSION GAUGE COCKS—(Try Cocks)

Size.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Iron Wheel, without stuffing box, finished, each.....	.95	1.00	1.25
Iron Wheel, without stuffing box, N. P., each.....	1.15	1.20	1.50
Iron Wheel, with stuffing box, finished, each.....	1.20	1.30	1.45
Iron Wheel, with stuffing box, N. P. each.....	1.40	1.50	1.80

COMPRESSION BOILER DRAIN COCKS

Size.....	$\frac{1}{2} \times \frac{1}{2}$	$\frac{1}{2} \times \frac{3}{4}$
Rough, Nickel Plated, Dozen.....	17.40	19.80

RADIATOR VALVES

Size						
	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Quick Opening N. P., Angle, without Union	\$2.95	\$3.25	\$3.90	\$5.00	\$6.30	\$10.50
Quick Opening N. P., Angle with Union	3.25	3.70	4.50	5.75	7.30	12.00
Quick Opening N. P., Straightway without Union	2.90	2.90	3.70	5.00	7.10	10.85
Quick Opening N. P., Straightway with Union	3.90	3.90	4.70	6.75	9.10	13.95
J. D., N. P. Angle without Union	3.40	3.85	4.50	5.65	7.40	12.10
J. D., N. P. Angle with Union	3.70	4.30	5.10	6.40	8.40	13.60
J. D., N. P. Globe without Union	3.40	3.85	4.50	5.65	7.40	12.10
J. D., N. P. Globe with Union	3.70	4.30	5.10	6.40	8.40	13.60
Jenkins N. P. Angle, Fig. 166, No. 4	2.40	2.90	3.60	4.90	6.65	10.90
Jenkins N. P. Angle with Union, Fig. 168, No. 9	3.15	3.90	4.70	6.25	8.15	13.00
Jenkins N. P. Globe, Fig. 165, No. 4	2.40	2.90	3.60	4.90	6.65	10.90
Jenkins N. P. Globe with Union, Fig. 167, No. 9	3.15	3.90	4.70	6.25	8.15	13.00
Standard N. P., W. W. Angle without Union	4.00	4.45	5.25	6.40	8.40	13.35
Standard N. P., W. W. Angle with Union	4.30	4.90	5.85	7.15	9.40	14.85
Standard N. P., W. W. Globe without Union	4.00	4.45	5.25	6.40	8.40	13.35
Standard N. P., W. W. Globe with Union	4.30	4.90	5.85	7.15	9.40	14.85
Peet Pattern N. P., Straightway Gate	2.40	3.00	3.85	5.00	6.60	9.65
Weber Pattern N. P., Straightway Gate, without Union	2.40	3.00	3.85	5.00	6.60	9.65
Weber Pattern N. P., Straightway Gate, with Union	3.65	4.25	5.20	6.60	9.00	12.80
Gov't. Pattern Elbow Gate, Brass Wheel N. P. without Union		3.80	4.75	5.85	7.20	10.35
Gov't. Pattern Elbow Gate, Brass Wheel N. P. with Union		4.80	5.85	7.20	8.70	12.45
Radiator Elbows N. P., with Union	1.75	2.00	2.50	3.30	4.25	7.20

BRASS VALVES

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Standard Globe.....	\$.72	\$.77	\$1.00	\$1.26	\$1.80	\$2.52	\$3.50	\$5.30	\$10.00	\$14.40
Standard Angle.....	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
Standard Horizontal Check.....	.65	.70	.90	1.15	1.60	2.25	3.15	4.75	9.00	13.00
Standard Vertical or Angle Check.....	.65	.70	.90	1.15	1.60	2.25	3.15	4.75	9.00	13.00
Peet Gate.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
Weber Gate.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
Jenkins Gate Type K.....	1.45	1.45	1.65	2.05	2.80	3.70	5.00	7.30	13.00	19.00
Jenkins Globe and Jenkins Disc.....	1.10	1.15	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Jenkins Angle and Jenkins Disc.....	1.10	1.15	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Jenkins Check and Jenkins Disc.....	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	14.00	21.00
Jenkins Discs only.....	.06	.08	.08	.10	.12	.18	.24	.36	.48	.80
Jenkins Swing Check.....	1.20	1.20	1.30	1.90	2.60	3.60	5.00	7.50	14.00	21.00

BRASS AND IRON COCKS

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Stop Cocks, Sq. HD. Brass.....	\$.85	\$1.00	\$1.25	\$1.70	\$2.35	\$3.70	\$4.85	\$7.30	\$14.50	\$22.50
Stop Cocks, Sq. HD., Threeway Brass.....		2.10	2.50	3.00	3.75	5.75	7.15	11.00	18.75	26.00
Cocks, Sq. HD. Iron.....			.90	1.05	1.30	1.60	1.95	2.70	4.40	6.75
Cocks, Sq. HD. Iron with Brass Washer.....			1.00	1.20	1.55	1.95	2.35	3.20	5.15	7.75
Cocks, Sq. HD. Iron with Brass Plug.....			1.30	1.60	1.90	2.65	3.75	5.25	8.75	13.00
Cocks, Sq. HD. Iron Threeway.....				1.65	1.80	2.05	2.65	3.65	5.35	7.50
Cocks, Sq. HD. Iron Threeway Brass Washer.....				1.80	2.05	2.40	3.05	4.15	6.10	8.50
Cocks, Sq. HD. Iron, Threeway Brass Plug.....				2.20	2.40	3.10	4.50	6.25	9.75	13.75
Wrenches, Malleable Steam Cock.....		.07	.07	.09	.14	.19	.25	.44	.56	1.00

COMPRESSION BIBBS, STOPS, STOP AND WASTE COCKS

Size	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Bibbs, Iron Pipe, plain, finished, Fig. 3000	Dozen	\$18.00	\$18.60	\$19.80	\$33.00	\$60.00	\$114.00	\$150.00
Bibbs, Iron Pipe, hose, finished, Fig. 3001	Dozen	....	21.60	22.80	36.00	67.20	124.80	165.00
Stops, Iron Pipe, straight, finished, Fig. 3451	Dozen	15.60	16.20	19.80	33.00	60.00	114.00	150.00
Stops, Iron Pipe, straight with Stuffing Box, Fig. 3453	Dozen	19.20	20.40	24.60	39.00	70.80	132.60	172.20
Stops, Iron Pipe, T. Handle Flatway Rough, Fig. 3954	Dozen	19.80	20.40	21.00	36.00	52.80	89.40	149.40
Stops, Iron Pipe, Lever Hdle, Flatway Rough, Fig. 3968	Dozen	19.80	20.40	21.00	36.00	52.80	89.40	149.40
Stop and Wastes I D T Halls Flatway Rough, Fig. 3055 Doz	Doz	20.40	21.00	21.60	36.60	54.00	91.20	153.40

IRON BODY VALVES

IRON BODY VALVES													
Size													
1½	2	2½	3	3½	4	4½	5	6	7	8	10	12	
3.50	5.40	7.35	9.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4.80	7.00	9.00	12.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.50	63.00	72.00	114.00	170.00	.....
.....	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00	68.00	77.00	123.00	187.00	.....
.....		12.00	13.50	17.50	20.00	26.00	30.00	36.00	55.00	70.00	110.00	160.00	.....
.....		14.50	17.00	21.00	24.00	30.00	34.00	41.00	60.00	75.00	115.00	168.00	.....
.....													
.....	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50	45.00	54.00	90.00	125.00	.....
.....	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50	49.00	58.00	95.00	133.00	.....
.....													
.....	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00	64.00	80.00	122.00	160.00	.....
.....	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00	68.00	84.00	127.00	168.00	.....
.....													
.....	19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00	69.00	86.00	131.00	172.00	
.....	21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00	73.00	90.00	136.00	180.00	
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FOOT VALVES—IRON BODY

FOOT VALVES—IRON BODY									
Size	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Painted.....	\$1.15	\$1.30	\$1.40	\$1.90	\$2.40	\$3.30	\$3.90	\$5.60	\$7.30
Galvanized.....	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50	11.00

STANDARD CAST IRON FITTINGS

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Elbows 90°	.05	.06	.08	.10	.12	.16	.20	.28	.50	.75	1.05	1.20	1.75	2.00	2.75	4.70	6.75	9.00	13.50	20.00
Elbows, Reducing	.05	.07	.09	.12	.15	.18	.23	.32	.60	.85	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
Elbows, R. & L.	.06	.07	.09	.12	.15	.18	.23	.32	.60	.85	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
Elbows 45°	.06	.07	.09	.12	.15	.18	.23	.32	.60	.85	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
Elbows, Side Outlet	.06	.07	.09	.12	.15	.18	.23	.32	.60	.85	1.20	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00
Tees	.08	.09	.12	.15	.18	.23	.29	.41	1.50	2.25	3.15	3.60	5.20	6.00	8.45	11.25	15.00	22.50	33.50	50.00
Tees, Reducing	.08	.10	.14	.17	.21	.27	.33	.47	.83	1.25	1.75	2.00	2.95	3.50	4.60	7.80	11.25	15.00	22.50	33.50
Tees, Side Outlet	.08	.10	.14	.17	.21	.27	.33	.47	.83	1.25	1.75	2.00	2.95	3.50	4.60	7.80	11.25	15.00	22.50	33.50
Crosses	.16	.22	.27	.33	.40	.48	.58	.75	1.30	2.00	2.70	3.15	4.60	5.50	7.25	12.25	17.50	23.50	35.00	52.50
Crosses, Reducing	.16	.22	.27	.33	.40	.48	.58	.75	1.30	2.00	2.70	3.15	4.60	5.50	7.25	12.25	17.50	23.50	35.00	52.50
Return Bends, close R. H.	.18	.25	.30	.36	.42	.48	.58	.83	1.45	2.20	3.00	3.50	5.00	6.00	8.00	13.50	19.25	26.00	38.50	58.00
Return Bends, close R. and L.	.18	.25	.30	.36	.42	.48	.58	.83	1.45	2.20	3.00	3.50	5.00	6.00	8.00	13.50	19.25	26.00	38.50	58.00
Return Bends, open R. H.	.21	.28	.34	.40	.48	.56	.66	.92	1.55	2.30	3.10	3.60	5.10	6.10	8.10	13.60	19.35	26.10	38.60	58.10
Return Bends, open R. and L.	.21	.28	.34	.40	.48	.56	.66	.92	1.55	2.30	3.10	3.60	5.10	6.10	8.10	13.60	19.35	26.10	38.60	58.10
Return Bends, pitched	.21	.28	.34	.40	.48	.56	.66	.92	1.55	2.30	3.10	3.60	5.10	6.10	8.10	13.60	19.35	26.10	38.60	58.10
Return Bends, close R.O., R.H.	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
Return Bends, close R.O.,	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
R. and L.	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
Return Bends, close or open	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
R.O., R. H.	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
Return Bends, close or open	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
R.O., R. and L.	.42	.48	.56	.64	.72	.80	.95	1.30	2.30	3.50	4.70	5.90	8.10	9.30	11.50	17.50	23.50	35.00	52.50	75.00
Caps	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Locknuts	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Couplings, Reducing	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Couplings, Eccentric Reducing	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Plugs, R. H.	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Plugs, L. H.	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Plugs, Solid	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Plugs, Countersunk	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00
Y. Branches	.02	.02	.03	.04	.05	.06	.07	.10	.18	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.25	5.75	8.00

	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Bushings, R. H.....	.04	.04	.05	.06	.07	.09	.14	.21	.30	.40	.50	.75	.93	1.25	1.87	2.75	3.25	3.75	5.00
Bushings, L. H.....	.08	.08	.10	.12	.14	.18	.28												
Bushings, Eccentric.....					.22	.25	.27	.42	.60		1.00		1.85	2.50					
Bushings, Faced.....	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50	2.10	2.60	3.75					

For galvanized, double above lists.

UNIONS—MALEABLE AND CAST IRON

	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Unions, Lip, black.....	.18	.20	.22	.27	.33	.46	.58	.75	1.55	2.10	3.65	4.35								
Unions, Lip, galvanized.....	.27	.30	.33	.40	.50	.70	.90	1.15	2.35	3.15	5.50	6.50								
Unions, two thirds, black.....	.12	.14	.16	.19	.22	.30	.40	.50	1.00	1.40	2.40	3.00								
Unions, two thirds, galv.....	.18	.20	.22	.25	.35	.50	.60	.75	1.60	2.10	3.70	4.35								
Unions, Dart, black female.....	.30	.40	.50	.60	.80	1.20	1.60	2.00	3.20	4.80	7.20	10.80								
Unions, Dart, galv. female.....	.39	.52	.65	.78	1.04	1.56	2.08	2.60	4.16	6.24	9.36	14.04								
Unions, Dart, black M. and F.....	.38	.50	.62	.75	1.00	1.50	2.00	2.50	4.00	6.00										
Unions, Dart, galvanized M. and F.....	.50	.65	.81	.98	1.30	1.95	2.60	3.25	5.20	7.80										
Unions, Dart, flange black.....					.80	1.20	1.60	2.00	3.20	4.80	6.00	7.50	8.75	10.00	12.50	15.00	18.00	21.60	28.80	46.00
Unions, Dart, flange galv.....					1.04	1.56	2.08	2.60	4.16	6.24	7.80	9.75	11.38	13.00	16.25	19.50	23.40	28.08	37.44	59.80
Unions, C. I., flange.....			.40	.46	.52	.64	.78	1.00	1.25	1.50	1.80	2.10	2.70	3.15	3.95	5.50	7.00	10.00	11.50	16.00

LONG SWEEP FITTINGS—CAST IRON

	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Elbows.....	.32	.40	.55	.80	1.20	2.25	3.25	3.50	5.50	6.50	8.75	13.00	17.00	25.50	30.00	40.00
Elbows, Reducing.....	.48	.60	.83	1.20	1.80	3.38	4.88	5.25	8.25	9.75	13.13	19.50	25.50	38.25	45.00	60.00
Elbows, Double Branch.....	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
Elbows, Double Branch, Reducing.....	.96	1.20	1.65	2.40	3.60	6.75	9.75	10.50	16.50	19.50	26.25	39.00	51.00	76.50	90.00	120.00
Tees, Single Sweep.....	.48	.60	.82	1.20	1.80	3.40	4.90	5.25	8.25	9.75	13.25	19.50	25.50	38.00	45.00	60.00
Tees, Single Sweep, Reducing.....	.72	.90	1.23	1.80	2.70	5.10	7.35	7.88	12.38	14.63	19.88	29.25	38.25	57.00	67.50	90.00
Tees, Double Sweep.....	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
Tees, Double Sweep, Reducing.....	.96	1.20	1.65	2.40	3.60	6.75	9.75	10.50	16.50	19.50	26.25	39.00	51.00	76.00	90.00	120.00
Crosses.....	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50	15.00	17.50	24.00	35.00	45.00	68.00	80.00	107.00
Crosses, Reducing.....	1.28	1.65	2.25	3.23	4.80	9.00	13.13	14.25	22.50	26.25	36.00	52.50	67.50	102.00	120.00	160.50

For galvanized, double above lists.

STANDARD FLANGED FITTINGS

Size	1 1/4 1 1/2 2 2 1/2 3 3 1/2 4 4 1/2 5 6 7 8 9 10 12														
	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Elbows 90°, faced only.....	3.00	3.00	3.00	3.15	3.45	4.05	4.50	5.50	6.25	7.60	10.50	12.00	17.00	19.00	28.00
Elbows 90°, faced and drilled.....	3.60	3.60	3.60	3.75	4.15	4.90	5.50	6.50	7.25	8.90	12.00	13.60	19.25	21.70	31.00
Elbows 45°, faced only.....	3.30	3.30	3.30	3.50	3.80	4.50	5.00	6.00	6.90	8.35	11.00	12.60	17.75	20.00	29.50
Elbows 45°, faced and drilled.....	3.90	3.90	3.90	4.10	4.50	5.35	6.00	7.00	7.90	9.65	12.50	14.20	20.00	22.70	32.50
Elbows, Reducing, faced only.....	.....	.....	.....	.....	6.90	8.10	9.00	11.00	12.50	15.25	21.00	24.00	34.00	38.00	56.00
Elbows, Reducing, faced and drilled.....	.....	.....	.....	.....	7.60	8.95	10.00	12.00	13.50	16.55	22.50	25.60	36.25	40.70	59.00
Elbows, Long Sweep, faced only.....	.....	.....	5.00	5.25	5.75	6.75	7.50	9.25	10.50	12.65	17.50	20.00	28.50	31.50	46.50
Elbows, Long Sweep, faced and drilled.....	.....	.....	5.90	6.15	6.85	8.00	9.00	10.75	12.00	14.60	19.75	22.40	31.85	35.50	51.00
Elbows, Base, faced only.....	.....	.....	.....	.....	.....	.....	9.00	11.00	12.50	15.25	21.00	24.00	34.00	38.00	56.00
Elbows, Base, faced and drilled.....	.....	.....	.....	.....	.....	.....	10.00	12.00	13.50	16.55	22.50	25.60	36.25	40.70	59.00
Facing and Drilling Base Flanges of Base															
Elbows.....															
Tees, faced only.....	4.35	4.35	4.35	4.55	5.00	5.85	6.50	8.00	9.10	11.00	15.25	17.40	24.65	27.50	40.50
Tees, faced and drilled.....	5.25	5.25	5.25	5.45	6.10	7.10	8.00	9.50	10.60	12.95	17.50	19.80	28.00	31.50	45.00
Tees, Reducing, faced only.....	.....	5.00	5.00	5.25	5.75	6.75	7.50	9.25	10.50	12.65	17.50	20.00	28.50	31.50	46.50
Tees, Reducing, faced and drilled.....	.....	5.90	5.90	6.15	6.85	8.00	9.00	10.75	12.00	14.60	19.75	22.40	31.85	35.50	51.00
Tees, Single Sweep, faced only.....	.....	.....	5.00	5.25	5.75	6.75	7.50	9.25	10.50	12.65	17.50	20.00	28.50	31.50	46.50
Tees, Single Sweep, faced and drilled.....	.....	.....	5.90	6.15	6.85	8.00	9.00	10.75	12.00	14.60	19.75	22.40	31.85	35.50	51.00
Tees, Single Sweep Redg., faced only.....	.....	.....	5.75	6.00	6.60	7.75	8.65	10.60	12.00	14.50	20.00	23.00	32.75	36.00	53.50
Tees, Single Sweep Redg., faced and drilled.....	.....	.....	6.65	6.90	7.70	9.00	10.15	12.10	13.50	16.45	22.25	25.40	36.10	40.00	58.00
Tees, Double Sweep, faced only.....	.....	.....	5.00	5.25	5.75	6.75	7.50	9.25	10.50	12.65	17.50	20.00	28.50	31.50	46.50
Tees, Double Sweep, faced and drilled.....	.....	.....	5.90	6.15	6.85	8.00	9.00	10.75	12.00	14.60	19.75	22.40	31.85	35.50	51.00
Tees, Double Sweep Redg., faced only.....	.....	.....	5.75	6.00	6.60	7.75	8.65	10.60	12.00	14.50	20.00	23.00	32.75	36.00	53.50
Tees, Do. Sweep Redg., faced and drilled.....	.....	.....	6.65	6.90	7.70	9.00	10.15	12.10	13.50	16.45	22.25	25.40	36.10	40.00	58.00
Crosses, faced only.....	6.75	6.75	6.75	6.95	7.65	9.00	10.15	12.10	13.50	16.45	22.25	25.40	36.10	40.00	58.00
Crosses, faced and drilled.....	7.95	7.95	7.95	8.15	9.05	10.70	12.00	14.00	15.75	19.25	26.00	29.75	42.00	47.50	67.50
Crosses, Reducing, faced only.....	.....	.....	7.75	8.00	8.75	10.35	11.50	13.75	15.75	19.25	26.50	30.50	43.00	48.00	71.00
Crosses, Reducing, faced and drilled.....	.....	.....	8.95	9.20	10.15	12.05	13.50	15.75	17.75	21.75	29.50	33.75	47.50	53.50	77.00
Y Branches, faced only.....	6.75	6.75	6.75	6.95	7.65	9.00	10.00	12.00	13.75	16.75	23.00	26.50	37.50	42.00	61.50
Y Branches, faced and drilled.....	7.95	7.95	7.95	8.15	9.05	10.70	12.00	14.00	15.75	19.25	26.00	29.75	42.00	47.50	67.50
Reducers, faced only.....	.....	.....	.....	.....	6.90	8.10	9.00	11.00	12.50	15.25	21.00	24.00	34.00	38.00	56.00
Reducers, faced and drilled.....	.....	.....	.....	.....	7.60	8.95	10.00	12.00	13.50	16.55	22.50	25.60	36.25	40.70	59.00

EXTRA HEAVY FLANGED FITTINGS

Size	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Elbows 90°, faced only.....	4.50	4.50	4.50	4.75	5.15	6.10	6.75	8.25	9.35	11.40	15.75	18.00	25.50	28.50	42.00
Elbows 90°, faced and drilled.....	5.40	5.40	5.40	5.65	6.25	7.35	8.25	9.75	10.85	13.40	18.00	20.50	28.85	32.50	46.50
Elbows 45°, faced only.....	5.00	5.00	5.00	5.25	5.65	6.75	7.50	9.00	10.35	12.50	16.50	19.00	26.75	30.00	44.00
Elbows 45°, faced and drilled.....	5.90	5.90	5.90	6.15	6.75	8.00	9.00	10.50	11.85	14.50	18.75	21.50	30.10	34.00	48.50
Elbows, Reducing, faced only.....	....	....	9.00	9.50	10.25	12.25	13.50	16.50	18.75	22.75	31.50	36.00	51.00	57.00	84.00
Elbows, Reducing, faced and drilled.....	....	....	9.90	10.40	11.35	13.50	15.00	18.00	20.25	24.75	33.75	38.50	54.35	61.00	88.50
Elbows, Long Sweep, faced only.....	....	....	7.50	8.00	8.60	10.25	11.25	13.75	15.50	19.00	26.50	30.00	42.50	47.75	70.00
Elbows, Long Sweep, faced and drilled.....	....	....	8.85	9.35	10.25	12.15	13.50	16.00	17.75	22.00	29.85	33.75	47.50	53.75	76.75
Elbows, Base, faced only.....	....	....	9.00	9.50	10.25	12.25	13.50	16.50	18.75	22.75	31.50	36.00	51.00	57.00	84.00
Elbows, Base, faced and drilled.....	....	....	9.90	10.40	11.35	13.50	15.00	18.00	20.25	24.75	33.75	38.50	54.35	61.00	88.50
Facing and Drilling Base Flanges of Base Elbows.....	....	....	....	....	....	....	4.50	4.50	5.25	5.25	5.25	7.50	7.50	7.50	11.00
Tees, faced only.....	6.50	6.50	6.50	6.90	7.50	8.90	9.75	12.00	13.50	16.50	23.00	26.00	37.00	41.50	61.00
Tees, faced and drilled.....	7.85	7.85	7.85	8.25	9.15	10.80	12.00	14.25	15.75	19.50	26.35	29.75	42.00	47.50	67.75
Tees, Reducing, faced only.....	....	7.50	7.50	8.00	8.60	10.25	11.25	13.75	15.50	19.00	26.50	30.00	42.50	47.75	70.00
Tees, Reducing, faced and drilled.....	....	8.85	8.85	9.35	10.25	12.15	13.50	16.00	17.75	22.00	29.85	33.75	47.50	53.75	76.75
Tees, Single Sweep, faced only.....	....	....	7.50	8.00	8.60	10.25	11.25	13.75	15.50	19.00	26.50	30.00	42.50	47.75	70.00
Tees, Single Sweep, faced and drilled.....	....	....	8.85	9.35	10.25	12.15	13.50	16.00	17.75	22.00	29.85	33.75	47.50	53.75	76.75
Tees, Double Sweep, faced only.....	....	....	7.50	8.00	8.60	10.25	11.25	13.75	15.50	19.00	26.50	30.00	42.50	47.75	70.00
Tees, Double Sweep, faced and drilled.....	....	....	8.85	9.35	10.25	12.15	13.50	16.00	17.75	22.00	29.85	33.75	47.50	53.75	76.75
Crosses, faced only.....	10.00	10.00	10.00	10.50	11.50	13.50	15.00	18.00	20.50	25.00	35.00	40.00	56.00	63.00	92.00
Crosses, faced and drilled.....	11.80	11.80	11.80	12.30	13.75	16.00	18.00	21.00	23.50	29.00	39.50	45.00	62.75	71.00	101.00
Crosses, Reducing, faced only.....	....	....	11.50	12.00	13.25	15.50	17.00	21.00	23.50	29.00	40.00	46.00	65.00	72.00	106.00
Crosses, Reducing, faced and drilled.....	....	....	13.50	13.80	15.50	18.00	20.00	24.00	26.50	33.00	44.50	51.00	71.75	80.00	115.00
Y Branches, faced only.....	10.00	10.00	10.00	10.50	11.50	13.50	15.00	18.00	20.50	25.00	35.00	40.00	56.00	63.00	92.00
Y Branches, faced and drilled.....	11.80	11.80	11.80	12.30	13.75	16.00	18.00	21.00	23.50	29.00	39.50	45.00	62.75	71.00	101.00
Reducers, faced only.....	....	....	9.00	9.50	10.25	12.25	13.50	16.50	18.75	22.75	31.50	36.00	51.00	57.00	84.00
Reducers, faced and drilled.....	....	....	9.90	10.40	11.35	13.50	15.00	18.00	20.25	24.75	33.75	38.50	54.35	61.00	88.50

Cast Iron Companion Flanges

STANDARD							EXTRA HEAVY						
Size of Pipe	Diam. of Flange	No. of Bolts	Size of Bolts	Length of Bolts	List Faced Only	List F & D	Size of Pipe	Diam of Flange	No. of Bolts	Size of Bolts	Length of Bolts	List Faced Only	List F & D
1	4	4	$\frac{7}{16}$	$1\frac{1}{2}$	\$.55	\$.80	1	$4\frac{1}{2}$	4	$\frac{1}{2}$	2	\$.95	\$1.30
$1\frac{1}{4}$	$4\frac{1}{2}$	4	$\frac{7}{16}$	$1\frac{1}{2}$	.60	.85	$1\frac{1}{4}$	5	4	$\frac{1}{2}$	$2\frac{1}{4}$	1.00	1.35
$1\frac{1}{2}$	5	4	$\frac{1}{2}$	$1\frac{3}{4}$	.65	.90	$1\frac{1}{2}$	6	4	$\frac{5}{8}$	$2\frac{1}{2}$	1.10	1.45
2	6	4	$\frac{5}{8}$	2	.75	1.00	2	$6\frac{1}{2}$	4	$\frac{5}{8}$	$2\frac{1}{2}$	1.25	1.60
$2\frac{1}{2}$	7	4	$\frac{5}{8}$	$2\frac{1}{4}$	.85	1.10	$2\frac{1}{2}$	$7\frac{1}{2}$	4	$\frac{3}{4}$	3	1.40	1.75
3	$7\frac{1}{2}$	4	$\frac{5}{8}$	$2\frac{1}{2}$	.95	1.25	3	$8\frac{1}{4}$	8	$\frac{3}{4}$	$3\frac{1}{4}$	1.60	2.05
$3\frac{1}{2}$	$8\frac{1}{2}$	4	$\frac{5}{8}$	$2\frac{1}{2}$	1.20	1.55	$3\frac{1}{2}$	9	8	$\frac{3}{4}$	$3\frac{1}{4}$	2.00	2.55
4	9	8	$\frac{5}{8}$	$2\frac{3}{4}$	1.35	1.80	4	10	8	$\frac{3}{4}$	$3\frac{1}{2}$	2.25	2.95
$4\frac{1}{2}$	$9\frac{1}{4}$	8	$\frac{3}{4}$	3	1.45	1.90	$4\frac{1}{2}$	$10\frac{1}{2}$	8	$\frac{3}{4}$	$3\frac{1}{2}$	2.40	3.10
5	10	8	$\frac{3}{4}$	3	1.60	2.05	5	11	8	$\frac{3}{4}$	$3\frac{3}{4}$	2.65	3.35
6	11	8	$\frac{3}{4}$	3	2.00	2.50	6	$12\frac{1}{2}$	12	$\frac{3}{4}$	$3\frac{3}{4}$	3.30	4.05
7	$12\frac{1}{2}$	8	$\frac{3}{4}$	3	2.65	3.25	7	14	12	$\frac{7}{8}$	4	4.40	5.30
8	$13\frac{1}{2}$	8	$\frac{3}{4}$	$3\frac{1}{4}$	3.10	3.80	8	15	12	$\frac{7}{8}$	$4\frac{1}{4}$	5.10	6.15
9	15	12	$\frac{3}{4}$	$3\frac{1}{4}$	3.85	4.65	9	$16\frac{1}{4}$	12	1	$4\frac{3}{4}$	6.30	7.50
10	16	12	$\frac{7}{8}$	$3\frac{1}{2}$	4.50	5.50	10	$17\frac{1}{2}$	16	1	5	7.40	8.90
12	19	12	$\frac{7}{8}$	$3\frac{3}{4}$	....	7.65	12	$20\frac{1}{2}$	16	$1\frac{1}{8}$	$5\frac{1}{2}$	10.75	12.50

Price list on Bolts, page 172.

Reducing and Blind Flanges

STANDARD

Outside Diameter of Reducing and Blind Flanges	6	7	7½	8½	9	9¼	10	11	12½
Red. Flanges, faced only.....	\$1.30	\$1.45	\$1.55	\$2.00	\$2.20	\$2.40	\$2.65	\$3.30	\$4.40
Red. Flanges, faced and drilled.....	1.55	1.70	1.85	2.35	2.65	2.85	3.10	3.80	5.00
Blind Flanges, faced only.....	1.15	1.30	1.40	1.80	2.00	2.20	2.40	3.00	4.00
Blind Flanges, faced and drilled.....	1.40	1.55	1.70	2.15	2.45	2.65	2.85	3.50	4.60

Reducing and Blind Flanges

EXTRA HEAVY

Outside Diameter of Reducing and Blind Flanges	6	6½	7½	8½	9	10	10½	11	12½
Red. Flanges, faced only.....	\$1.80	\$2.10	\$2.30	\$2.65	\$3.30	\$3.70	\$4.00	\$4.40	\$5.50
Red. Flanges, faced and drilled.....	2.15	2.45	2.65	3.10	3.85	4.40	4.70	5.10	6.25
Blind Flanges, faced only.....	1.65	1.90	2.10	2.40	3.00	3.35	3.60	4.00	5.00
Blind Flanges, faced and drilled.....	2.00	2.25	2.45	2.85	3.55	4.05	4.30	4.70	5.75

Price List on Bolts, page 172. Size of Bolts, see page 156.

Standard Cast Iron Flanges

Not Faced or Drilled

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
$\frac{3}{4}$ x4	\$.22	4 x $8\frac{1}{2}$	\$1.00	7x13 $\frac{1}{2}$	\$2.80
1 $\frac{1}{4}$ x4 $\frac{1}{2}$	.25	3 x 9	1.15	8x13 $\frac{1}{2}$	2.80
$\frac{3}{4}$ x5	.30	3 $\frac{1}{2}$ x 9	1.15	6x14	3.25
1 x5	.30	4 x 9	1.15	7x14	3.25
1 $\frac{1}{4}$ x5	.30	4 $\frac{1}{2}$ x 9	1.15	8x14	3.25
1 $\frac{1}{2}$ x5	.30	4 $\frac{1}{2}$ x 9 $\frac{1}{4}$	1.25	7x15	4.00
1 x6	.42	3 $\frac{1}{2}$ x10	1.50	8x15	4.00
1 $\frac{1}{4}$ x6	.40	4 x10	1.50	9x15	4.00
1 $\frac{1}{2}$ x6	.40	4 $\frac{1}{2}$ x10	1.50	8x16	5.00
2 x6	.42	5 x10	1.50	9x16	5.00
2 $\frac{1}{2}$ x6	.42	6 x10	1.50	10x16	5.00
2 x6 $\frac{1}{2}$	.50	4 $\frac{1}{2}$ x11	1.75	9x17	5.75
2 $\frac{1}{2}$ x6 $\frac{1}{2}$	.50	5 x11	1.75	10x17	5.75
3 x6 $\frac{1}{2}$	.50	6 x11	1.75	10x18	7.00
2 x7	.62	5 x12	2.20	12x18	7.00
2 $\frac{1}{2}$ x7	.62	6 x12	2.20	10x19	7.50
3 x7	.62	7 x12	2.20	12x19	7.50
3 x7 $\frac{1}{2}$	.75	5 x12 $\frac{1}{2}$	2.20	12x20	8.50
2 x8	.90	6 x12 $\frac{1}{2}$	2.20	14x20	8.50
2 $\frac{1}{2}$ x8	.90	7 x12 $\frac{1}{2}$	2.20	14x21	9.50
3 x8	.90	6 x13	2.80	15x21	9.50
3 $\frac{1}{2}$ x8	.90	7 x13	2.80	15x22 $\frac{1}{4}$	14.00
4 x8	.90	8 x13	2.80	16x23 $\frac{1}{2}$	18.00
3 $\frac{1}{2}$ x8 $\frac{1}{2}$	1.00	6 x13 $\frac{1}{2}$	2.80	.....	.....

Floor Flanges

Cast Iron

Size	Dia. of Flange	Price Each		Size	Dia. of Flange	Price Each	
		Black	Galv.			Black	Galv.
$\frac{1}{4}$	2 $\frac{1}{8}$	\$.14	\$.28	1 $\frac{1}{4}$	4 $\frac{3}{8}$	\$.30	\$.60
$\frac{3}{8}$	2 $\frac{7}{8}$	.14	.28	1 $\frac{1}{2}$	4 $\frac{7}{8}$	.36	.72
$\frac{1}{2}$	2 $\frac{15}{16}$	.15	.30	2	5 $\frac{3}{8}$	.45	.90
$\frac{3}{4}$	3 $\frac{3}{8}$	.18	.36	2 $\frac{1}{2}$	6 $\frac{7}{8}$	.85	1.70
1	3 $\frac{7}{8}$	.22	.44	3	7	1.00	2.00

Malleable Iron Fittings

ELBOWS 90°			ELBOWS, R and L		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1/8	.10	.13	1/4	.16	....
1/4	.08	.12	3/8	.24	....
3/8	.13	.19	1/2	.18	.27
1/2	.18	.26	3/4	.30	.45
3/4	.19	.31	1	.50	.75
1	.32	.53	1 1/4	.55	.90
1 1/4	.55	.89	1 1/2	.69	1.10
1 1/2	.68	1.10	2	1.05	1.70
2	1.05	1.70	ELBOWS, S. O.		
2 1/2	2.10	3.40	Size	Price Per Piece	
3	3.10	5.10		Black	Galv.
3 1/2	4.35	7.10	3/8	.13	.19
4	5.20	8.45	1/2	.24	.36
4 1/2	7.20	11.75	3/4	.38	.56
5	8.50	13.85	1	.51	.76
6	14.95	24.40	1 1/4	1.10	1.60
1/4 x 1/8	.13	.17	1 1/2	1.10	1.65
3/8 x 1/8	.21	.28	2	1.65	2.45
3/8 x 1/4	.11	.17	3/8 x 3/8 x 1/4	.14	.20
1/2 x 1/4	.19	.28	1/2 x 1/2 x 3/8	.22	.33
1/2 x 3/8	.18	.26	3/4 x 3/4 x 3/8	.34	.50
3/4 x 3/8	.22	.33	3/4 x 3/4 x 1/2	.36	.53
3/4 x 1/2	.26	.39	1 x 1 x 3/4	.40	.59
1 x 3/8	.40	.59	1 1/4 x 1 1/4 x 1	1.05	1.60
1 x 1/2	.42	.63	ELBOWS 45°		
1 x 3/4	.29	.47	Size	Price Per Piece	
1 1/4 x 3/4	.44	.71		Black	Galv.
1 1/4 x 1	.50	.81	1/4	.08	.12
1 1/2 x 3/4	.44	.72	3/8	.13	.19
1 1/2 x 1	.56	.91	1/2	.19	.28
1 1/2 x 1 1/4	.63	1.05	3/4	.28	.42
2 x 1	.71	1.15	1	.50	.74
2 x 1 1/4	.88	1.45			
2 x 1 1/2	.97	1.60			
2 1/2 x 1 1/2	1.35	2.25			
2 1/2 x 2	1.40	2.25			
3 x 2	2.15	3.55			
3 x 2 1/2	2.50	4.10			
3 1/2 x 3	4.15	6.80			
4 x 3	5.10	8.30			
4 x 3 1/2	5.65	9.25			

Malleable Iron Fittings

ELBOWS 45°, Cont'd.

Size	Price Per Piece	
	Black	Galv.
1 1/4	.75	1.10
1 1/2	.86	1.30
2	1.55	2.30
2 1/2	1.65	2.65
3	2.40	3.95
3 1/2	4.00	6.50
4	3.95	6.45
4 1/2	5.05	8.25
5	6.35	10.35
6	9.60	15.85

ELBOWS, STREET

Size	Price Per Piece	
	Black	Galv.
1/8	....	....
1/4	.08	.12
3/8	.12	.18
1/2	.22	.32
3/4	.30	.45
1	.35	.58
1 1/4	.57	.93
1 1/2	.69	1.10
2	1.20	2.00
2 1/2	1.90	3.05
3	2.90	4.75
4	6.15	10.05
3/4 x 1/2	.24	.36
1 x 1 1/2	.42	.63
1 x 3/4	.47	.70
1 1/4 x 1	.44	.71
1 1/2 x 1 1/4	.64	1.05
2 x 1 1/4	.91	1.50
2 x 1 1/2	1.00	1.65
2 1/2 x 2	1.85	3.00
3 x 2 1/2	2.95	4.80
4 x 3	6.00	9.80

DROP ELBOWS—Female

Size	Price Per Piece	
	Black	Galv.
1/4	.10	.14
3/8	.18	.26
1/2	.27	.40
3/4	.46	.68
3/8 x 1/4	.13	.19
3/4 x 1/2	.41	.61

DROP ELBOWS—M. and F.
Short

Size	Price Per Piece	
	Black	Galv.
3/8	.14	.20
1/2	.27	.40
1/4 x 3/8	.11	.17
1/2 x 3/8	.24	.36

DROP ELBOWS—M. and F.
Long

Size	Price Per Piece	
	Black	Galv.
3/8	.22	.32
1/2	.38	.57
1/4 x 3/8	.18	.27
1/2 x 3/8	.34	.50

TEES

Size	Price Per Piece	
	Black	Galv.
1/8	.13	.17
1/4	.11	.17
3/8	.18	.26
1/2	.24	.36
3/4	.27	.44
1	.43	.70
1 1/4	.74	1.20
1 1/2	.96	1.60
2	1.45	2.40
2 1/2	2.60	4.40
3	4.15	6.85
3 1/2	5.50	9.05
4	6.85	11.30

Malleable Iron Fittings

TEES, Cont'd.			TEES, Cont'd.		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
4½	9.70	16.00	1x½x1	.58	.87
5	12.20	20.10	1x¾x¾	.46	.69
6	17.35	28.55	1x¾x½	.44	.66
⅛x⅛x¼	.14	.19	1x¾x¾	.39	.64
¼x¼x⅛	.19	.26	1x¾x1	.45	.74
¼x¼x¾	.22	.34	1x¾x1½	.51	.85
⅜x¼x¼	.09	.13	1x1x¼	1.35	2.05
⅜x¼x¾	.16	.24	1x1x¾	.66	.99
⅜x¾x⅛	.37	.49	1x1x½	.62	.93
⅜x¾x¼	.17	.25	1x1x¾	.43	.70
⅜x¾x½	.20	.30	1x1x1¼	.58	.95
⅜x¾x¾	.30	.46	1x1x1½	.71	1.15
½x¼x½	.16	.24	1x1x2	.94	1.55
½x¾x¼	.18	.26	1¼x¾x1¼	.91	1.35
½x¾x¾	.19	.29	1¼x½x1	.88	1.30
½x¾x½	.26	.40	1¼x1½x1¼	.88	1.30
½x¾x¾	.28	.42	1¼x¾x¾	.52	.95
½x½x¼	.22	.34	1¼x¾x1	.52	.86
½x½x¾	.26	.38	1¼x¾x1½	.63	1.05
½x½x¾	.34	.50	1¼x1x¾	.70	1.05
½x½x1	.46	.69	1¼x1x½	.76	1.15
¾x¼x¾	.46	.69	1¼x1x¾	.43	.71
¾x¾x¾	.34	.52	1¼x1x1	.64	1.05
¾x¾x½	.37	.55	1¼x1x1¼	.66	1.10
¾x¾x¾	.41	.61	1¼x1x1½	.87	1.45
¾x¾x1	.54	.81	1¼x1¼x¾	.74	1.10
¾x½x¼	.39	.59	1¼x1¼x½	.80	1.20
¾x½x¾	.29	.43	1¼x1¼x¾	.58	.95
¾x½x½	.36	.54	1¼x1¼x1	.62	1.05
¾x½x¾	.37	.55	1¼x1¼x1½	.79	1.30
¾x½x1	.52	.78	1¼x1¼x2	.92	1.50
¾x¾x¼	.32	.48	1½x¾x1½	1.30	1.90
¾x¾x¾	.32	.48	1½x½x1½	1.20	1.75
¾x¾x½	.35	.53	1½x¾x¾	.73	1.20
¾x¾x1	.36	.60	1½x¾x1½	.78	1.30
1x¾x½	.54	.81	1½x1x1	.71	1.15
1x¾x¾	.61	.91	1½x1x1¼	.76	1.25
1x¾x1	.72	1.10	1½x1x1½	.83	1.35
1x½x¾	.55	.83	1½x1¼x¾	.68	1.10
1x½x½	.48	.72	1½x1¼x1	.69	1.15
1x½x¾	.60	.90	1½x1¼x1¼	.78	1.30
			1½x1¼x1½	.87	1.45

Malleable Iron Fittings

TEES, Cont'd.			TEES, Cont'd.		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1½x1¼x2	1.15	1.95	3x3x2½	3.25	5.35
1½x1½x¾	.86	1.30	3½x3½x2½	4.15	6.85
1½x1½x½	.95	1.45	3½x3½x3	5.05	8.35
1½x1½x¾	.75	1.25	4x3x4	6.10	10.05
1½x1½x1	.78	1.30	4x4x1	4.45	7.30
1½x1½x1¼	.83	1.35	4x4x1¼	4.70	7.70
1½x1½x2	1.15	1.95	4x4x1½	4.50	7.40
2x¾x2	1.80	2.70	4x4x2	4.50	7.40
2x½x2	1.80	2.70	4x4x2½	5.40	8.90
2x¾x2	1.05	1.70	4x4x3	6.25	10.25
2x1x2	1.30	2.15	4x4x3½	7.55	12.40
2x1¼x1¼	1.20	2.00	5x5x2	6.50	10.70
2x1¼x1½	1.15	1.85	5x5x3	10.90	18.00
2x1¼x2	1.25	2.10	5x5x4	13.00	21.40
2x1½x1	.91	1.50	6x6x2	10.60	17.45
2x1½x1¼	1.10	1.75	6x6x3	11.15	18.35
2x1½x1½	1.15	1.85	6x6x4	13.25	21.85
2x1½x2	1.30	2.15	TEES, 4-WAY		
2x2x½	1.25	1.85	Size	Price Per Piece	
2x2x¾	.89	1.45		Black	Galv.
2x2x1	1.05	1.75	¾	.18	.28
2x2x1¼	1.10	1.85	½	.23	.35
2x2x1½	1.25	2.05	¾	.34	.52
2x2x2½	1.90	3.15	1	.61	.92
2x2x3	2.40	4.00	1¼	1.00	1.50
2½x2x2½	2.35	3.90	1½	1.20	1.80
2½x2½x¾	1.65	2.75	2	1.90	2.85
2½x2½x1	1.35	2.25	TEES, SERVICE		
2½x2½x1¼	1.80	3.00	Size	Price Per Piece	
2½x2½x1½	1.35	2.25		Black	Galv.
2½x2½x2	2.35	3.85	¾	.20	.30
2½x2½x3	3.25	5.35	½	.26	.38
3x2x3	3.40	5.55	¾	.39	.59
3x3x¾	2.60	4.30	1	.39	.64
3x3x1	3.05	5.00	1¼	.75	1.25
3x3x1¼	3.00	4.90			
3x3x1½	2.55	4.15			
3x3x2	3.05	5.05			

Malleable Iron Fittings

TEES, SERVICE—Cont'd.			DROP TEES, M. and F.		
Size	Price Per Piece		Short		
	Black	Galv.	Size	Black	Galv.
1½	.95	1.55	¼x¼x¾	.16	.24
2	1.55	2.55	¾x¼x¾	.18	.27
2½	2.50	4.10	¾	.16	.24
3	3.55	5.80	½x¾x¾	.22	.32
¾x½x¾	.36	.54	½x½x¾	.19	.28
¾x¾x1	.42	.62	¾x½x¾	.29	.43
1x¾x1	.48	.72	¾x¾x¾	.30	.45
1x1x¾	.67	1.00	1x1x¾	.43	.64
1x1x1¼	.42	.68	DROP TEES, M. and F.		
1¼x¾x1¼	.49	.81	Long		
1¼x1x1	.60	.98	Size	Price Per Piece	
1¼x1x1¼	.68	1.10		Black	Galv.
1½x¾x1½	.82	1.35	¾	.18	.27
1½x1x1½	.86	1.40	¾x¾x½	.46	.69
1½x1¼x1½	.89	1.45	1x1x½	.49	.72
2x1½x2	1.45	2.40	1¼x1¼x½	.74	1.10
2½x2x2½	2.20	3.60	CROSSES		
3x2½x3	2.95	4.90	Size	Price Per Piece	
3x3x4	3.90	6.40		Black	Galv.
DROP TEES, FEMALE			¼	.10	.16
Size	Price Per Piece		¾	.22	.34
	Black	Galv.	½	.32	.48
¾	.19	.28	¾	.48	.73
½	.29	.43	1	1.00	1.50
¾	.39	.58	1¼	.79	1.30
⅛x¾x¼	.17	.25	1½	1.15	1.90
½x¾x¾	.21	.31	2	1.80	3.00
½x½x¾	.22	.32	2½	3.10	5.20
¾x½x¾	.35	.52	3	4.75	7.85
¾x¾x¼	.33	.49	3½	5.50	9.15
¾x¾x¾	.31	.46	4	8.75	14.55
¾x¾x½	.35	.52	5	14.95	24.85
1x1x¾	.58	.85	6	20.40	33.90
			¾x¾x¼	.19	.29
			½x¾x¾	.23	.35
			½x¼x¼	.24	.36
			½x½x¾	.24	.36

Malleable Iron Fittings

CROSSES—Cont'd.			COUPLINGS, R. and L. Continued		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
$\frac{3}{4} \times \frac{3}{8} \times \frac{1}{2}$	.46	.69	$\frac{3}{4}$	.29	.43
$\frac{3}{4} \times \frac{1}{2} \times \frac{3}{8}$	.46	.70	1	.33	.53
$\frac{3}{4} \times \frac{1}{2} \times \frac{1}{2}$	.48	.73	$1\frac{1}{4}$	.44	.72
$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{8}$	.38	.57	$1\frac{1}{2}$	.52	.85
$\frac{3}{4} \times \frac{3}{4} \times \frac{1}{2}$	.42	.64	2	.83	1.35
$1 \times \frac{1}{2} \times \frac{3}{8}$	.52	.79	$2\frac{1}{2}$	1.30	2.10
$1 \times \frac{3}{4} \times \frac{3}{8}$	.50	.75	3	1.75	2.90
$1 \times \frac{3}{4} \times \frac{1}{2}$	.70	1.05	COUPLINGS, REDUCING		
$1 \times \frac{3}{4} \times \frac{3}{4}$	.72	1.10	Size	Price Per Piece	
$1 \times 1 \times \frac{3}{8}$	.58	.88		Black	Galv.
$1 \times 1 \times \frac{1}{2}$	.64	.97	$\frac{1}{4} \times \frac{1}{8}$	.13	.17
$1 \times 1 \times \frac{3}{4}$	.78	1.15	$\frac{3}{8} \times \frac{1}{8}$	.14	.19
$1\frac{1}{4} \times 1 \times \frac{3}{4}$	.48	.79	$\frac{3}{8} \times \frac{1}{4}$	.10	.14
$1\frac{1}{4} \times 1 \times 1$	.49	.82	$\frac{1}{2} \times \frac{1}{8}$	.29	.38
$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{8}$	.86	1.30	$\frac{1}{2} \times \frac{1}{4}$	.13	.19
$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{2}$	.84	1.25	$\frac{1}{2} \times \frac{3}{8}$	.15	.23
$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	.83	1.40	$\frac{3}{4} \times \frac{1}{4}$	.21	.31
$1\frac{1}{4} \times 1\frac{1}{4} \times 1$	.77	1.30	$\frac{3}{4} \times \frac{3}{8}$	.18	.27
$1\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{4}$	1.05	1.75	$\frac{3}{4} \times \frac{1}{2}$	.22	.33
$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$	1.05	1.60	$1 \times \frac{1}{4}$	.32	.47
$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}$	.65	1.10	$1 \times \frac{3}{8}$	.33	.49
$1\frac{1}{2} \times 1\frac{1}{2} \times 1$	.84	1.40	$1 \times \frac{1}{2}$	.35	.52
$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	.96	1.60	$1 \times \frac{3}{4}$	.40	.59
$2 \times 2 \times \frac{1}{2}$	1.50	2.30	$1\frac{1}{4} \times \frac{3}{8}$	.40	.59
$2 \times 2 \times \frac{3}{4}$	.91	1.50	$1\frac{1}{4} \times \frac{1}{2}$	.36	.53
$2 \times 2 \times 1$	1.15	2.30	$1\frac{1}{4} \times \frac{3}{4}$	.26	.42
$2 \times 2 \times 1\frac{1}{4}$	1.60	2.65	$1\frac{1}{4} \times 1$	.33	.53
$2 \times 2 \times 1\frac{1}{2}$	2.00	3.35	$1\frac{1}{2} \times \frac{1}{2}$	.56	.83
$2\frac{1}{2} \times 2\frac{1}{2} \times 2$	2.60	4.30	$1\frac{1}{2} \times \frac{3}{4}$	.39	.64
$3 \times 3 \times 2$	3.40	5.60	$1\frac{1}{2} \times 1$	.42	.68
$3 \times 3 \times 2\frac{1}{2}$	3.90	6.45	$1\frac{1}{2} \times 1\frac{1}{4}$	.50	.81
$4 \times 4 \times 2$	5.55	9.20	$2 \times \frac{1}{2}$	.94	1.45
$4 \times 4 \times 3$	5.70	10.30	$2 \times \frac{3}{4}$	.68	1.10
COUPLINGS, R. and L.			2×1	.66	1.10
Size	Price Per Piece		$2 \times 1\frac{1}{4}$	.68	1.10
	Black	Galv.	$2 \times 1\frac{1}{2}$	.68	1.10
$\frac{1}{4}$	.07	.11	$2\frac{1}{2} \times 1$	1.10	1.80
$\frac{3}{8}$	.12	.18	$2\frac{1}{2} \times 1\frac{1}{4}$	1.00	1.65
$\frac{1}{2}$	.16	.24	$2\frac{1}{2} \times 1\frac{1}{2}$	.95	1.55

Malleable Iron Fittings

COUPLINGS, REDUCING Cont'd.			RETURN BENDS — Close		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
2½x2	1.15	1.90	½	.29	.43
3x1	1.45	2.35	¾	.38	.57
3x1¼	1.45	2.35	1	.72	1.05
3x1½	1.45	2.40	1¼	.75	1.20
3x2	1.55	2.55	1½	1.00	1.65
3x2½	1.60	2.65	2	1.55	2.55
3½x2	1.65	2.70	RETURN BENDS — Close R. and L.		
3½x2½	2.10	3.40	Size	Price Per Piece	
3½x3	2.35	3.80		Black	Galv.
4x1	2.50	4.05	½	.58	.76
4x1¼	2.50	4.10	¾	.39	.58
4x1½	2.40	3.95	1	.73	1.10
4x2	2.45	3.95	1¼	1.20	1.75
4x2½	2.50	4.10	1½	1.55	2.30
4x3	2.90	4.75	2	2.50	3.70
4x3½	3.25	5.30	RETURN BENDS Medium		
COUPLINGS, R. H.			Size	Price Per Piece	
Size	Price Per Piece			Black	Galv.
	Black	Galv.	½	.29	.43
¼	.06	.09	¾	.42	.62
⅜	.10	.14	1	.93	1.40
½	.18	.27	1¼	.85	1.40
¾	.26	.38	1½	1.05	1.70
1	.30	.49	2	1.85	3.05
1¼	.44	.71	RETURN BENDS Medium. R. and L.		
1½	.52	.85	Size	Price Per Piece	
2	.83	1.35		Black	Galv.
2½	1.35	2.20	½	.64	.85
3	2.10	3.40	¾	.43	.64
3½	4.20	6.25	1	.94	1.40
4	4.95	7.30	1¼	1.35	2.00
4½	6.70	9.90	1½	1.65	2.40
5	7.60	11.30	2	2.90	4.25
6	11.50	17.05			

Malleable Iron Fittings

RETURN BENDS Open			Y BENDS		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1/2	.32	.47	1/2	.37	.55
3/4	.50	.75	3/4	.40	.59
1	.96	1.40	1	.80	1.20
1 1/4	.94	1.55	1 1/4	1.45	2.15
1 1/2	1.25	2.10	1 1/2	1.90	2.85
2	2.00	3.20	2	3.20	4.75
2 1/2	3.85	6.30	2 1/2	.....	.....
3	5.70	9.35	3	.....	.....
RETURN BENDS Open, R. and L.			4	.....	.....
Size	Price Per Piece		1 1/4 x 1 1/4 x 3/4	1.10	1.60
	Black	Galv.	1 1/2 x 1 1/4 x 1 1/4	1.90	2.80
1/2	.66	.87	1 1/2 x 1 1/4 x 1 1/2	1.90	2.85
3/4	.51	.76	1 1/2 x 1 1/2 x 1 1/4	1.90	2.80
1	1.00	1.50	2 x 1 1/4 x 1 1/4	2.20	3.25
1 1/4	1.45	2.15	2 x 1 1/4 x 1 1/2	2.00	3.00
1 1/2	2.00	3.00	2 x 1 1/4 x 2	2.15	3.20
2	3.05	4.55	2 x 1 1/2 x 1 1/4	1.70	2.55
2 1/2	6.00	8.90	2 x 1 1/2 x 1 1/2	1.80	2.65
3	8.90	13.20	2 x 1 1/2 x 2	2.25	3.30
CAPS			2 x 2 x 1 1/4	2.60	3.85
Size	Price Per Piece		2 x 2 x 1 1/2	3.30	4.90
	Black	Galv.	FLOOR FLANGES		
1/8	.....	.....	Size	Price Per Piece	
1/4	.04	.06		Black	Galv.
3/8	.06	.08	1/4	.16	.24
1/2	.13	.19	3/8	.24	.36
3/4	.16	.24	1/2	.34	.50
1	.30	.45	3/4	.33	.54
1 1/4	.30	.48	1	.42	.68
1 1/2	.36	.59	1 1/4	.58	.94
2	.59	.97	1 1/2	.73	1.20
2 1/2	.99	1.60	2	.88	1.45
3	1.55	2.50	2 1/2	1.65	2.65
3 1/2	2.05	3.35			
4	2.45	4.00			
5	3.95	6.45			
6	6.65	10.80			

Malleable Iron Fittings

LOCKNUTS			UNION ELBOWS Female		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1/4	.03	.05	1/4	.38	.57
3/8	.04	.06	3/8	.40	.60
1/2	.06	.09	1/2	.42	.63
3/4	.10	.14	3/4	.54	.81
1	.15	.23	1	.63	.95
1 1/4	.23	.34	1 1/4	.90	1.35
1 1/2	.17	.27	1 1/2	1.05	1.58
2	.22	.36	2	1.55	2.35
			2 1/2	2.85	4.30
CROSSOVERS			UNION ELBOWS M. and F.		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1/2	.20	.25	1/4	.43	.65
3/4	.30	.40	3/8	.45	.70
1	.45	.60	1/2	.48	.72
EXTENSION PIECES			3/4	.62	.93
Size	Price Per Piece		1	.72	1.08
	Black	Galv.	1 1/4	1.05	1.60
3/8	.06	.09	1 1/2	1.20	1.80
1/2	.09	.13	2	1.80	2.70
3/4	.12	.18	2 1/2	3.30	4.95
WASTE NUTS			UNION TEES Female		
Size	Price Per Piece		Size	Price Per Piece	
	Black	Galv.		Black	Galv.
1/4	.04	.08	1/4	.40	.60
3/8	.05	.10	3/8	.43	.65
1/2	.06	.12	1/2	.45	.68
3/4	.08	.16	3/4	.57	.86
1	.10	.20	1	.70	1.05
1 1/4	.15	.30	1 1/4	.95	1.45
1 1/2	.25	.50	1 1/2	1.15	1.75
			2	1.70	2.55
			2 1/2	3.20	4.80

Malleable Iron Fittings

UNION TEES—M. and F.

Size	Price Per Piece	
	Black	Galv.
$\frac{1}{4}$	.48	.72
$\frac{3}{8}$	.50	.75
$\frac{1}{2}$	.52	.78
$\frac{3}{4}$	.65	1.00
1	.80	1.20
$1\frac{1}{4}$	1.10	1.65
$1\frac{1}{2}$	1.30	1.95
2	1.95	2.95
$2\frac{1}{2}$	3.70	5.55

BOILER ELBOWS

Without Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.40
$\frac{3}{4} \times \frac{1}{2} \times 1$	.40
$\frac{3}{4} \times \frac{3}{4} \times 1$	.40

BOILER ELBOWS

With Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.60
$\frac{3}{4} \times \frac{1}{2} \times 1$	.75
$\frac{3}{4} \times \frac{3}{4} \times 1$	.75

BOILER ELBOWS

New Style With Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.60
$\frac{3}{4} \times \frac{1}{2} \times 1$	.75
$\frac{3}{4} \times \frac{3}{4} \times 1$	.75

BOILER COUPLINGS

Without Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.40
$\frac{3}{4} \times \frac{1}{2} \times 1$	.40
$\frac{3}{4} \times \frac{3}{4} \times 1$	.40

BOILER COUPLINGS

With Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.60
$\frac{3}{4} \times \frac{1}{2} \times 1$	.75
$\frac{3}{4} \times \frac{3}{4} \times 1$	.75

BOILER COUPLINGS

New Style With Union

Size	Price Per Piece
	Galv.
$\frac{1}{2} \times \frac{1}{2} \times 1$	.60
$\frac{3}{4} \times \frac{1}{2} \times 1$	.75
$\frac{3}{4} \times \frac{3}{4} \times 1$	.75

Malleable Iron Nipples

R. AND L. WITH HEXAGON CENTRE

Size	Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Each.....		.20	.20	.20	.25	.30	.40	.50	.70	1.10	1.50	1.90	2.40

WROUGHT IRON COUPLINGS

Size	Inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Black.....		.05	.05	.06	.07	.10	.13	.17	.21	.28
Galvanized.....		.06	.06	.08	.10	.13	.18	.25	.32	.40

Size	Inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Black.....		.40	.60	.80	1.00	1.50	1.65	2.40	3.25	4.25
Galvanized.....		.55	.80	1.05	1.40	2.00	2.25	3.25	4.20	5.50

MALLEABLE IRON RAILING FITTINGS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Elbows.....	.15	.18	.20	.35	.45	.72
Elbows, side outlet.....	.20	.23	.25	.40	.50	.80
Tees.....	.20	.23	.25	.40	.50	.75
Tees, side outlet.....	.30	.33	.35	.45	.55	.90
Crosses.....	.30	.33	.35	.45	.58	1.00
Crosses, side outlet.....	.35	.38	.40	.50	.65	1.35
Ball Ornaments.....	.16	.18	.20	.25	.35	.90
Floor Flanges.....	.20	.22	.25	.35	.45	.55
Floor Flanges, sq. pattern	.14	.15	.15	.20	.28	.30

All fittings are threaded right hand unless otherwise ordered. Railing Fittings can be furnished threaded left hand, or reamed to slip pipe to order.

Galvanized Fittings at double above lists.

MALLEABLE IRON ADJUSTABLE RAILING FITTINGS

Size	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Elbows.....	1.10	1.25	1.70	2.25
Tees.....	1.30	1.50	2.00	2.50
Stair Tees.....	1.30	1.60	2.15	2.50
Crosses.....	1.50	1.75	2.35	2.75
Stair Crosses.....	1.50	1.85	2.50	2.75
Landing Tees.....	.90	1.10	1.50	2.15
Landing Crosses.....	1.00	1.20	1.60	2.40
Flanges.....	1.65	1.75	1.90	2.50

All openings are tapped right hand. Fittings ordered otherwise will be charged at special prices.

Galvanized Fittings at double above lists.

Branch Tees or Headers

CAST IRON

1-INCH BRANCH HEADERS—2½-IN. CENTRE TO CENTRE

Number of Branches.....	2	3	4	5	6	7	8	9	10	12
1 or 1¼-in. Run..... Each	.90	1.05	1.15	1.35	1.60	1.90	2.20	2.65	3.15	4.40
1½-in. Run..... Each	1.00	1.15	1.30	1.45	1.75	2.20	2.45	2.90	3.30	4.75
2-in. Run..... Each	1.15	1.35	1.60	1.85	2.10	2.45	2.75	3.40	4.00	5.10
2½-in. Run..... Each	1.75	2.05	2.40	2.75	3.10	3.50	3.75	4.30	5.00	5.85

1¼-INCH BRANCH HEADERS—3-IN. CENTRE TO CENTRE

Number of Branches.....	2	3	4	5	6	7	8	9	10	12
1¼ or 1½-in. Run..... Each	1.30	1.65	2.00	2.40	2.80	3.20	3.60	4.30	4.80	5.25
2-in. Run..... Each	1.50	1.90	2.40	2.90	3.30	3.90	4.50	5.25	5.85	6.50
2½-in. Run..... Each	1.95	2.40	2.85	3.55	3.95	4.20	4.95	6.15	6.85	7.65

1½-INCH BRANCH HEADERS—3½-IN. CENTRE TO CENTRE

Number of Branches.....	2	3	4	5	6	7	8	9	10	12
1½ or 2-in. Run..... Each	2.10	2.70	3.35	4.00	4.65	5.25	5.85	6.50	7.60	8.50
2½-in. Run..... Each	2.85	3.45	4.15	5.00	5.75	6.50	7.00	8.25	9.25	10.50
3-in. Run..... Each	3.15	3.80	4.60	5.50	6.25	7.25	7.75	9.00	10.00	11.50

2-INCH BRANCH HEADERS—4½-IN. CENTRE TO CENTRE

Number of Branches.....	2	3	4	5	6	7	8	9	10	12
2-in. Run..... Each	4.10	5.25	6.40	7.65	8.80	10.60	11.50	12.25	13.50	15.00
2½ or 3-in. Run..... Each	4.50	5.75	7.00	8.50	9.75	11.75	12.75	13.50	15.00	16.50
3½-in. Run..... Each	5.00	6.25	7.75	9.25	10.75	13.00	14.00	15.00	16.50	

Back or Side Outlets, use next higher list.
In ordering state size of Run required.

When not ordered otherwise, all openings will be tapped Right Hand.

Number of Branches.....											
HOOK PLATES											
1 -in. pipe, 2½-in. centre to centre	.09	.18	.23	.26	.32	.38	.48	.59	.65	.75	.85
1¼-in. pipe, 3 -in. centre to centre	.10	.21	.27	.32	.41	.52	.68	.80	.90	1.00	1.35
1½-in. pipe, 3½-in. centre to centre	.15	.28	.43	.58	.72	.88	1.10	1.25	1.40	1.55	1.65
2 -in. pipe, 4½-in. centre to centre	.22	.43	.65	.90	1.15	1.35	....	....	....	....	....
RING PLATES											
1 -in. pipe, 2½-in. centre to centre	.16	.28	.41	.50	.62	.72	.96	1.00	....	....	....
1¼-in. pipe, 3 -in. centre to centre	.21	.35	.50	.62	.75	1.10	1.25	1.40	....	....	....

GRABLER STEEL HOOK PLATES

Size, Inches.....		1		1¼		1½		2	
Number of Hooks, per strip.....		30		30		25		20	
Prices per strip.....		2.50		3.25		3.75		4.25	

PIPE HANGERS

Sizes.....											
Exp. Ring Hangers, complete.....	....	....	....	.17	.18	.19	.25	.29	.36	.44	.55
Exp. Ring Hangers, without plates.....	....	....	....	.08	.12	.15	.20	.25	.30	.40	.50
Grabler Hanger Rings.....	.14	.14	.16	.18	.16	.18	.20	.22	.24	.26	.30
Ring Stays, short, black, per 100.....	5.00	5.80	7.75	10.00	14.00	14.00	22.00	22.00	....	....	....
Ring Stays, short, galvanized, per 100.....	6.50	7.00	9.00	12.00	16.00	16.00	25.00	25.00	....	....	....
Ring Stays, long, black, per 100.....	6.50	8.00	10.00	12.00	15.00	15.00	24.00	24.00	....	....	....
Ring Stays, long, galvanized, per 100.....	8.00	10.00	12.00	14.00	18.00	18.00	27.00	27.00	....	....	....

GRABLER BAR, LAG SCREWS AND BEAM CLAMPS

Number.....											
Size Pipe.....											
Bar, per foot.....	....	....	....	....	....	....	....	....	....	....	....
Lag Screws, each.....	.08	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28
Beam Clamps, each.....	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75

TINNED PIPE CLIPS

Size.....											
Inches.....											
Per Pound.....	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20

Floor and Ceiling Plates

	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
C. I. Floor, plain.....	.06	.06	.08	.11	.14	.16	.24	.30	.35	.42
C. I. Floor, plated.....	.12	.12	.14	.18	.22	.26	.35	.45	....	....
C. I. Ceiling, S.S., plain.....	.11	.13	.16	.18	.23	.27	.36	.50	.55	.68
C. I. Ceiling, S.S., plated....	.14	.17	.20	.23	.30	.35	..	..	....	....
Stamped Steel Floor, plated	.12	.12	.14	.18	.22	.26	.35	.45	....	....
B. and C., plated.....	.27	.28	.32	.35	.38	.45	.65	.80	1.00	1.25

Fusible Plugs

Size.....	$\frac{1}{2}$	$\frac{3}{4}$	1
Short.....	.60	.75	1.00
Long.....	1.20	1.50	2.00

Square Head Machine Bolts

PRICE PER 100

Length Under the Head Inches	Dia. $\frac{1}{4}$ Inch	Dia. $\frac{5}{16}$ Inch	Dia. $\frac{3}{8}$ Inch	Dia. $\frac{7}{16}$ Inch	Dia. $\frac{1}{2}$ Inch	Dia. $\frac{9}{16}$ & $\frac{5}{8}$ Inch	Dia. $\frac{3}{4}$ Inch	Dia. $\frac{7}{8}$ Inch	Dia. 1 Inch
$1\frac{1}{2}$	1.70	2.00	2.40	3.00	3.70	5.50	7.70	10.50	15.10
2	1.80	2.15	2.60	3.25	4.00	5.90	8.25	11.20	16.00
$2\frac{1}{2}$	1.90	2.30	2.80	3.50	4.30	6.30	8.80	11.90	16.90
3	2.00	2.45	3.00	3.75	4.60	6.70	9.35	12.60	17.80
$3\frac{1}{2}$	2.10	2.60	3.20	4.00	4.90	7.10	9.90	13.30	18.70
4	2.20	2.75	3.40	4.25	5.20	7.50	10.45	14.00	19.60
$4\frac{1}{2}$	2.30	2.90	3.60	4.50	5.50	7.90	11.00	14.70	20.50
5	2.40	3.05	3.80	4.75	5.80	8.30	11.55	15.40	21.40
$5\frac{1}{2}$	2.50	3.20	4.00	5.00	6.10	8.70	12.10	16.10	22.30
6	2.60	3.35	4.20	5.25	6.40	9.10	12.65	16.80	23.20
$6\frac{1}{2}$	3.70	4.50	5.40	6.50	7.70	9.50	13.20	17.50	24.10
7	3.80	4.65	5.60	6.75	8.00	9.90	13.75	18.20	25.00
$7\frac{1}{2}$	3.90	4.80	5.80	7.00	8.30	10.30	14.30	18.90	25.90
8	4.00	4.95	6.00	7.25	8.60	10.70	14.85	19.60	26.80
9	4.20	5.25	6.40	7.75	9.20	11.50	15.95	21.00	28.60
10	4.40	5.55	6.80	8.25	9.80	12.30	17.05	22.40	30.40

Add 10% to list for Hexagon Nuts.

Wrought Iron Nipples
BLACK IRON—RIGHT HAND

TAYLOR-FORBES COMPANY, LIMITED, GUELPH, ONT.

Length in Inches				Inches Size	Prices		Prices of Extra Long Nipples									
Close	Short	Long			Close or Short	Long	Lengths in Inches									
		2	2½	3			3½	4	5	6	7	8	9	10	11	12
¾	1½	2	2½	3	3½	\$.04	\$.06	\$.07	\$.08	\$.10	\$.12	\$.14	\$.15	\$.17	\$.18	\$.19
7⁄8	1½	2	2½	3	3½	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1	1½	2	2½	3	3½	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1⅛	1½	2	2½	3	3½	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
1⅜	2	2½	3	3½	4	.06	.09	....	.11	.13	.17	.18	.20	.22	.24	.26
1½	2	2½	3	3½	4	.08	.13	....	.15	.18	.23	.25	.28	.31	.34	.36
1⅝	2½	3	3½	4	4½	.11	.17	....	.20	.24	.29	.33	.36	.40	.44	.47
1¾	2½	3	3½	4	4½	.13	.20	....	.25	.29	.36	.40	.45	.50	.54	.59
2	2½	3	3½	4	4½	.18	.27	....	.32	.38	.50	.54	.59	.65	.72	.77
2½	3	3½	4	4½	5	.39	.59	....	....	.68	.90	.97	1.06	1.17	1.26	1.35
2½	3	3½	4	4½	5	.48	.72	....	....	.85	1.08	1.20	1.33	1.45	1.58	1.70
2¾	4	4½	5	5½	6	.75	1.05	....	....	....	1.30	1.45	1.60	1.75	1.90	2.05
3	4	4½	5	5½	6	.85	1.20	....	....	....	1.52	1.69	1.87	2.05	2.22	2.40
3	4	4½	5	5½	6	1.25	1.70	....	....	....	2.25	2.50	2.75	2.95	3.17	3.40
3¼	4½	5	5½	6	6½	1.55	2.45	....	....	....	2.58	2.83	3.10	3.35	3.60	3.85
3¼	4½	5	5½	6	6½	1.85	2.90	....	....	....	3.05	3.35	3.70	4.00	4.30	4.65
3½	5	....	....	....	....	3.20	....	....	3.60	4.05	4.05	4.45	4.90	5.30	5.75	6.15
3½	5	....	....	....	....	3.55	....	....	4.05	4.55	....	5.05	5.50	6.00	6.50	7.00
4	5	....	....	....	....	5.25	....	....	....	....	....	6.50	7.10	7.75	8.40	9.00
4	5	....	....	....	....	6.75	....	....	....	....	....	8.25	8.90	9.70	10.40	11.15
4	5	....	....	....	....	8.00	....	....	....	....	....	10.00	10.80	11.75	12.70	13.65

For extra heavy Nipples double above list.

Wrought Iron Nipples

BLACK IRON—RIGHT AND LEFT

Length in Inches				Prices		Prices of Extra Long Nipples															
Close	Short	Long				Size, Inches	Close or Short		Long	Lengths in Inches											
							4	5		6	7	8	9	10	11	12					
$\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{8}$	\$.05	\$.08	\$.13	\$.16	\$.18	\$.20	\$.23	\$.25	\$.27						
$\frac{7}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{4}$	.05	.08	.13	.16	.18	.20	.23	.25	.27						
1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{3}{8}$	.05	.08	.13	.16	.18	.20	.23	.25	.27						
$1\frac{1}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{2}$	.07	.10	.16	.18	.21	.24	.27	.29	.31						
$1\frac{3}{8}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$\frac{3}{4}$	.08	.12	.17	.23	.25	.27	.29	.32	.35						
$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	1	.11	.18	.24	.31	.33	.37	.41	.45	.48						
$1\frac{5}{8}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$1\frac{1}{4}$	.15	.23	.32	.39	.45	.50	.55	.60	.65						
$1\frac{3}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$1\frac{1}{2}$	.18	.27	.39	.48	.52	.60	.67	.72	.80						
2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	2	.24	.36	.51	.67	.72	.80	.87	.96	1.03						
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$2\frac{1}{2}$	.52	.79	.91	1.20	1.30	1.40	1.55	1.68	1.80						
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	3	.65	.96	1.13	1.44	1.60	1.77	1.93	2.10	2.27						
$2\frac{3}{4}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$3\frac{1}{2}$	1.00	1.40	....	1.75	1.95	2.15	2.35	2.55	2.75						
3	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	4	1.15	1.60	....	2.00	2.25	2.50	2.75	3.00	3.25						

For extra heavy Nipples, double above list.

Wrought Iron Nipples
GALVANIZED—RIGHT HAND

TAYLOR-FORBES COMPANY, LIMITED, GUELPH, ONT.

Length in Inches				Size, Inches	Prices		Prices of Extra Long Nipples										
Close	Short	Long			Close or Short	Long	Lengths in Inches										
							4	5	6	7	8	9	10	11	12		
$\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{8}$	\$.06	\$.11	\$.12	\$.15	\$.17	\$.21	\$.24	\$.26	\$.29	\$.31	\$.34
$\frac{7}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{4}$	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{3}{8}$	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
$1\frac{1}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$\frac{1}{2}$	.06	.11	.13	.16	.18	.23	.26	.28	.31	.33	.36
$1\frac{3}{8}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$\frac{3}{4}$	.08	.14	....	.18	.21	.26	.29	.32	.35	.38	.41
$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	1	.11	.19	....	.24	.28	.34	.38	.42	.47	.51	.55
$1\frac{5}{8}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$1\frac{1}{4}$	.17	.29	....	.32	.38	.45	.51	.57	.63	.69	.75
$1\frac{3}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$1\frac{1}{2}$	.21	.35	....	.39	.46	.55	.63	.70	.77	.84	.91
2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	2	.27	.47	....	.52	.61	.74	.83	.93	1.03	1.13	1.23
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	$2\frac{1}{2}$	.56	.86	....	....	1.00	1.26	1.41	1.56	1.71	1.86	2.01
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	3	.70	1.10	....	....	1.30	1.60	1.80	2.00	2.20	2.40	2.60
$2\frac{3}{4}$	4	$4\frac{1}{2}$	5	6	7	$3\frac{1}{2}$	1.20	1.70	....	....	....	2.10	2.35	2.60	2.85	3.15	3.40
3	4	$4\frac{1}{2}$	5	6	7	4	1.35	1.87	....	....	....	2.30	2.60	2.90	3.20	3.50	3.80
3	4	$4\frac{1}{2}$	5	6	7	$4\frac{1}{2}$	1.85	2.60	....	....	....	3.30	3.65	4.05	4.45	4.85	5.25
$3\frac{1}{4}$	$4\frac{1}{2}$	5	$5\frac{1}{2}$	$6\frac{1}{2}$	8	5	2.30	3.15	....	....	....	3.75	4.20	4.60	5.00	5.40	5.85
$3\frac{1}{4}$	$4\frac{1}{2}$	5	$5\frac{1}{2}$	$6\frac{1}{2}$	....	6	2.80	4.25	....	....	....	4.50	5.00	5.55	6.05	6.60	7.15
$3\frac{1}{2}$	5	....	....	....	....	7	4.25	....	....	....	4.95	5.65	6.35	7.05	7.75	8.45	9.20
$3\frac{1}{2}$	5	....	....	....	....	8	5.00	....	....	....	5.80	6.65	7.50	8.35	9.25	10.10	10.95

For extra heavy Nipples, double above list.

Wrought Iron Nipples

GALVANIZED—RIGHT AND LEFT

Length in Inches				Prices		Prices of Extra Long Nipples									
Close	Short	Long		Size, Inches	Close or Short	Long	Lengths in Inches								
							4	5	6	7	8	9	10	11	12
$\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$\frac{1}{8}$	\$.08	\$.13	\$.15	\$.18	\$.21	\$.26	\$.29	\$.32	\$.37	\$.40	\$.43
$\frac{7}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$\frac{1}{4}$	.08	.13	.15	.18	.21	.26	.29	.32	.37	.40	.43
1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$\frac{3}{8}$	.08	.13	.15	.18	.21	.26	.29	.32	.37	.40	.43
$1\frac{1}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$\frac{1}{2}$	.11	.16	.18	.21	.26	.29	.34	.38	.43	.46	.50
$1\frac{3}{8}$	2	$2\frac{1}{2}$	3	$\frac{3}{4}$	.13	.19	....	.24	.27	.37	.40	.43	.46	.51	.56
$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	1	.18	.29	....	.32	.38	.50	.53	.59	.66	.72	.77
$1\frac{5}{8}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$1\frac{1}{4}$	.24	.37	....	.43	.51	.62	.72	.80	.88	.96	1.04
$1\frac{3}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$1\frac{1}{2}$	.29	.43	....	.54	.62	.77	.83	.96	1.07	1.15	1.28
2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	2	.39	.57	....	.69	.82	1.07	1.15	1.28	1.39	1.54	1.65
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$2\frac{1}{2}$	.83	1.25	....	....	1.46	1.92	2.08	2.24	2.48	2.69	2.88
$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	3	1.04	1.54	....	....	1.81	2.30	2.56	2.83	3.09	3.36	3.63
$2\frac{3}{4}$	4	$4\frac{1}{2}$	5	$3\frac{1}{2}$	1.60	2.24	....	....	....	2.80	3.12	3.44	3.76	4.08	4.40
3	4	$4\frac{1}{2}$	6	4	1.84	2.56	....	....	....	3.20	3.60	4.00	4.40	4.80	5.20

For extra heavy Nipples, double above list.

Price List of Extras for Cutting and Threading Pipe

CUTTING AND THREADING PIPE EXTRA

Size.....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Cut—Price each.....	.06	.06	.06	.06	.06	.08	.10	.14	.20	.30	.40	.40	.50	.60	.80	1.00	1.20	2.00	2.50	3.50
Thread—Price each....	.06	.06	.06	.06	.06	.08	.10	.14	.20	.30	.40	.40	.50	.60	.80	1.00	1.20	2.00	2.50	3.50

CUTTING TO LENGTHS EXTRA

Inch	6 feet and longer			2 feet and under 6 feet			1 foot and under 2 feet		
	Black	Galvanized	Black	Black	Galvanized	Black	Black	Galvanized	Galvanized
1/4.....	\$.60	\$.90	\$.80	\$.80	\$ 1.20	\$ 1.00	\$ 1.50 per 100 feet		
3/8.....	.60	.90	.80	.80	1.20	1.00	1.50		
1/2.....	.80	1.00	1.10	1.10	1.30	1.30	1.70		
3/4.....	1.20	1.30	1.50	1.50	1.70	1.90	2.10		
1.....	1.40	1.90	2.00	2.00	2.50	2.40	3.20		
1 1/4.....	2.00	2.60	2.60	2.60	3.40	3.30	4.30		
1 1/2.....	2.40	3.10	3.20	3.20	4.10	3.90	5.10		
2.....	3.20	4.10	4.20	4.20	5.50	5.30	6.90		
2 1/2.....	5.10	6.60	6.80	6.80	8.80	8.50	11.00		
3.....	6.70	8.60	8.90	8.90	11.50	11.10	14.40		
3 1/2.....	8.30	10.60	11.00	11.00	14.20	13.80	17.70		
4.....	9.80	12.60	13.10	13.10	16.80	18.30	21.00		

Pieces under one foot sold on the Nipple list.

Asbestos, Air-Cell, 85% Magnesia and Mineral Wool Sectional Pipe Coverings and Fittings.

Standard Thicknesses

PRICE LIST

Inside Dia. of Pipe Inches	Price per Lin. Ft. Eastern List	Elbows	Tees	Crosses	Globe Valves	Flange Covers
1/2	\$.22	\$.30	\$.36	\$.48	\$.54	\$.50
3/4	.24	.30	.36	.48	.54	.50
1	.27	.30	.36	.48	.54	.50
1 1/4	.30	.30	.36	.48	.54	.50
1 1/2	.33	.30	.36	.48	.54	.50
2	.36	.36	.42	.54	.60	.60
2 1/2	.40	.42	.48	.60	.78	.70
3	.45	.48	.54	.70	.96	.80
3 1/2	.50	.54	.60	.80	1.20	.90
4	.60	.60	.75	.95	1.50	1.00
4 1/2	.65	.72	.90	1.10	1.85	1.30
5	.70	.90	1.20	1.50	2.25	1.60
6	.80	1.30	1.60	2.00	2.80	1.90
7	1.00	1.80	2.20	2.80	3.60	2.20
8	1.10	2.40	3.00	3.60	4.40	2.50
9	1.20	3.00	3.80	4.40	5.30	2.90
10	1.30	3.60	4.60	5.20	6.20	3.30
12	1.85	....	....	....	....	....

All pipe coverings are supplied in sections three feet long, canvassed and with bands. For irregular flanges or fittings larger than 10-in. use Asbestos Cement or Asbestos Cement Felting.

Asbestos Cement, per 100-lb. bag.....*

Mineral Wool, per 50-lb. bag.....*

Asbestos Sheathing, per 100 sq. ft.....*

HAIR FELT

In Rolls containing 300 square feet.

1/2 inch.....* per hundred square feet

3/4 inch.....* per hundred square feet

1 inch.....* per hundred square feet

* Prices on application.

Asbestos Cement Required to Cover the Following Boilers

“NEW SOVEREIGN” HOT WATER BOILERS

No.	0	C 1	C 1½	C 2	C 2½	C 3	C 3½	C 4	C 4½	C 5	C 5½	C 6	C 6	AC	6 ½	C	6 ½	AC	7	C	7 ½	C	8	C
Pounds Asbestos.....	75	100	125	150	150	175	200	225	250	275	275	300	300	300	325	325	350	350	375	375	375	400	400	400

“CANADIAN” STEAM AND WATER BOILERS

No.	215	216	217	265	266	267	268	325	326	327	328	329	3210	405
Pounds Asbestos.....	275	325	375	360	415	465	515	490	550	670	685	750	815	590

“CANADIAN” STEAM AND WATER BOILERS

No.	406	407	408	409	4010	4011	466	467	468	469	4610	4611	4612	4613
Pounds Asbestos.....	665	735	810	880	950	1025	700	775	850	930	1010	1090	1170	1250

Asbestos Cement Required to Cover the Following Boilers

"NEW MONARCH" STEAM AND WATER BOILERS

No.....	923	933	943	953	963	924	934	944	954	964	935	945	955	965
Lbs. Asbestos.....	130	150	190	220	265	145	170	215	250	300	190	245	280	335

"TAYLOR-FORBES" BUNGALOW HEATERS

No.....	10-OX	913B	914B	210B	15B	17B	19B	22B
Lbs. Asbestos.....	95	100	115	120	80	100	120	140

"TAYLOR-FORBES" HOT WATER SUPPLY BOILERS

No.....	120T	160T	210C	1110	1112	1115	1117	1119	1122	1012	1012	1015
Lbs. Asbestos.....	50	75	120	60	70	80	95	120	140	55	65	75

Expansion Tanks

Made of Galvanized Iron. Complete with Gauge Glasses and Mountings.

Size	Capacity Imp. Gal's.	Sq. Ft. of Radiation	List
12x24	9.82	500	
12x30	12.27	750	
14x30	16.71	1,000	
16x30	21.82	1,300	Quoted
16x36	26.19	1,600	on
16x48	34.92	2,100	Request
18x60	55.24	3,300	
20x60	68.19	4,100	
22x60	82.51	5,000	

Brass Mountings only per set. *

Gauge Glasses

	$\frac{5}{8}$ x 12	$\frac{5}{8}$ x 14	$\frac{5}{8}$ x 16	$\frac{5}{8}$ x 18
Each.....	.30	.35	.40	.45

Thermometers

N. P. Hot Water Thermometer, straight, each.....	*
N. P. Hot Water Thermometer, angle, each.....	*
N. P. Steam Thermometer with temperature and pressure scales straight, each.....	*
N. P. Steam Thermometer with temperature and pressure scales, angle, each.....	*

* Quoted on request.

Gauges

ALTITUDE GAUGES

5" Plain case, turned brass ring, altitude gauge,
each.....Price on application

HIGH AND LOW PRESSURE STEAM GAUGES

5" Single spring pressure gauge, iron case brass
ring, 30 lbs. registration, each.....Price on application

4½" Special ounce graduation low pressure retard
guage, each.....Price on application

5" Single spring pressure gauge, iron case brass
ring, 200 lbs. registration, eachPrice on application

COMPOUND PRESSURE AND VACUUM GAUGES

5" Compound pressure and vacuum gauge, iron
case, brass ring, 30 on the pressure side, 15
on the vacuum side, each.....Price on application

4½" Special ounce graduation pressure and
vacuum retard gauge, each.....Price on application

VACUUM GAUGES

5" Vacuum gauge, iron case, brass ring regis-
tration, 30 inches, each.....Price on application

Engineering Data

Directions for Ordering Radiators and Radiator Repairs

Standard Radiators

1. Give exact routing for shipment and state when wanted.
2. State plainly the catalogue name.
3. State whether 2, 3, 4 or 5 Loops wide, the number of sections in the radiator and the catalogue height.
4. State whether round or square top, plain or ornamental (plain radiation will always be shipped unless otherwise ordered).
5. State whether for hot water or steam.
6. If for hot water advise if twin or opposite end connection.
7. If for steam, advise whether for a one or two pipe system; also if required for a special system give the name of same.
8. State the size of tappings and whether to be threaded right or left. See tappings, pages 72, 77-79.
9. In ordering curved or angle radiators give full dimensions clearly as shown on page 73.
10. For convenience in handling and to avoid breakage, long radiators are divided for shipping.

Wall Radiators

1. State whether 6, 7, 9 or 12 square feet sections, Empress or Victor Pattern and whether to be assembled vertically or horizontally, see pages 94-95.
2. State the number of sections in the radiator.
3. State whether for water or steam, location of the tappings and whether to be threaded right or left hand.

Radiator Repairs

1. When ordering radiator sections only advise whether centre sections, centre leg sections, feed legs or return legs.
2. State whether plain or ornamental, round or square top and give the catalogue name of the radiator.
3. State the size and location of the tappings, if right or left hand and also whether for hot water or steam.

Directions for Ordering Boilers and Boiler Repairs

Boilers

1. Give plainly the catalogue name and number and date of the boiler, whether steam or water, also the rated

Directions for Ordering (Continued)

capacity in square feet. Give the number of square feet of direct, and if any, direct-indirect or hot blast radiation that the boiler is to take care of.

Boiler Repairs

1. Give the catalogue name and number and date of the boiler and whether steam or water. Give also the pattern numbers appearing on the casting if possible.

2. Sections on round boilers are numbered from the fire pot up and sections on square boilers are numbered from the front.

3. Grate bars for round boilers are either numbered from the front or the left when facing boiler according to the type of boiler in use, also state whether it is a shaker or non-shaker grate. Grate bars for square boilers are numbered from the front. When ordering grates for square boilers that are in two sections state whether the right or left section is required when facing the boiler.

Air Required for Ventilation

An adult requires each hour for respiration and transpiration 215 feet or $215 \times .077 = 165$ pounds, and generates 290 B.T.U. of which 99 units are in form of vapor and 191 units radiate to surrounding objects.

Approximate

An adult requires not less than 1,800 cubic feet of air per hour.

Each cubic foot gas burned requires 8.5. cubic feet air.

Each pound oil burned requires 150 cubic feet air.

B. T. U. generated by an adult per hour, 191.

B. T. U. generated by burning 1 cubic foot illuminating gas 600.

B. T. U. generated by burning 1 pound illuminating oil, 15,000.

Average gas burner consumes approximately 4 cubic feet gas per hour, which equals 2,400 B. T. U. per hour.

B. T. U.—British Thermal Units.

General Specifications for Heating and Ventilating Public Schools, Etc.

1. That the apparatus with proper management will heat, by direct radiation, all the rooms to 70° and all entrance corridors to at least 60° in any weather.

2. That with the rooms at 70° the apparatus will heat at least 30 cubic feet of air per minute for each

General Specifications (Continued)

senior scholar and 20 cubic feet of air per minute for each junior scholar accommodated in the rooms.

Note—The proportion of pure outside air that must be provided in the above depends on the location and surroundings of the building and the temperature of the fresh air provided.

3. That such supply of air will so circulate in the rooms that no uncomfortable draught will be felt and that the difference in temperature between any two points on the breathing plane, when scholar is seated, in the occupied portion of a room will not exceed 5° .

4. That vitiated air in amount equal to supply from inlets will be removed through the vent ducts.

Tests to be made by anemometer at both inlet and outlet registers to see that the requirements are fulfilled.

Flues For Indirect Heating

Size of Heat Flues Without Fan

For first floor rooms for every 8,000 cubic feet of air required per hour provide flue having one square foot in cross sectional area. For second floor rooms reduce this area by one third and third floor rooms reduce by one half.

With Fan

For rooms on all floors for every 60,000 cubic feet of air required per hour provide flue having two square feet in cross sectional area.

Chimney Flues

Probably no other single source is responsible for so many failures in heating as defective chimneys. It should always be borne in mind and emphasized with every prospective customer that no boiler has a draught within itself to create combustion. The draught of the boiler depends entirely upon the chimney flue to which it is attached and the better the chimney, the more successful the working of the entire apparatus.

The size and height of the chimney absolutely limit the size of Boiler that can be used economically. The manufacturer of to-day, knowing that customers demand a slow combustion boiler and one requiring the minimum amount of attention, provides a larger grate area with a greater depth of fire pot than formerly and this demands an increased flue area to correspond. In providing a smoke outlet, which governs the size of smoke pipe, he assumes

Chimney Flues (Continued)

there will be a short horizontal connection from boiler to chimney and that the average residence chimney will have a height above the boiler top of from 30 to 40 feet with no surrounding objects to create a down draught.

The burning of paper in a chimney, the flame of which is drawn quickly upward in the flue, does not signify that the draught is adequate to take care of the heating apparatus attached to it. There still may be a great lack of capacity, and while a strong draught may compensate to some extent for lack of area, the only safe course is to build the flue sufficiently large to do the work easily.

Flues should be perfectly straight, plastered smoothly inside, or better still, tile lined, and not less than eight inches (8") deep. Round tile flues are best. A square flue will have a better draught than the oblong flue of equal area. Chimney flues should be constructed with a shallow dust flue only. Deep dust flues assist in producing poor draught.

The chimney should be built in inside walls wherever possible. They should always be carried above the highest point of the building or adjacent buildings. The draught of a chimney is influenced to a great extent by the conditions of the surrounding space. If obstructions exist in the vicinity, of such form as to deflect the currents of air down the chimney, the draught will be impaired and may be entirely destroyed.

The conditions which tend to produce downward air currents may sometimes be situated a considerable distance from the chimney and thus render the specific cause of poor draught very difficult to determine.

The remedy for smoky chimneys is sometimes difficult to apply. The draft should be improved by adding to the height of the chimney or by adopting some form of chimney top which, while not decreasing the smoke outlet, utilizes the force of horizontal currents of air, thus increasing the draught.

Sometimes several flues are built in one chimney, all connected together in the ash pit. In such cases, if one of the flues is connected with a fire place or any other opening, the draught will be spoiled no matter how good the flue may be.

Local conditions must of necessity govern the size and height of the chimney and the same rule for determining this cannot be applied in every instance. For these reasons a great deal depends upon the judgment of the heating engineer.

Chimney Flues (Continued)

In the sections of this catalogue devoted to boilers will be found the chimney flue advised when the altitude of the place is not more than 1000 feet above sea level.

As a check to what sized flue should be provided for different buildings under the above conditions, use the following table figured from the total contents of building required to be heated when up-draught boilers are being installed.

With chimney thirty feet high having:	Round Flue	Square or Rectangular Flue
Buildings with not more than:—		
10,000 cu. ft.....	8"	8" x 8"
10,000 to 13,000 cu. ft.....	9"	9" x 9"
13,000 to 18,000 cu. ft.....	10"	9" x 13"
18,000 to 30,000 cu. ft.....	12"	13" x 13"
30,000 to 54,000 cu. ft.....	15"	13" x 18"
54,000 to 90,000 cu. ft.....	18"	18" x 18"

Chimney flues may be decreased in size according to the height of the chimney, based on the size as given in table above as follows:

Height of chimney in feet	30	40	50	60	80	100
Buildings with not more than:		Size of Flue req'd. Inches				
10,000 cu. ft.....	8	7.7	7.4	7.1	.....	.....
10,000 to 13,000 cu. ft.....	9	8.6	8.2	7.8	.....	.....
13,000 to 18,000 cu. ft.....	10	9.4	8.8	8.4	8.0	7.7
18,000 to 30,000 cu. ft.....	12	11.4	10.8	10.4	10.0	9.6
30,000 to 54,000 cu. ft.....	15	14.0	13.4	13.0	12.1	11.8
54,000 to 90,000 cu. ft.....	18	16.6	15.9	15.6	14.9	14.0

Chimney flues have to be increased where the altitude is over 1000 feet, the humidity of the air is beyond normal or the enclosures of the chimney are exposed on more than one side to the outside air. The following is the increase necessary for increased altitude:

When altitude is 2000 ft.	flue area should be increased	4%
" " " 2500 "	" " " "	6%
" " " 3000 "	" " " "	8%
" " " 3500 "	" " " "	10%
" " " 4000 "	" " " "	12%
" " " 5000 "	" " " "	17%

Heating System Balance

To design and install a heating system that will give an equalized or balanced distribution of heat to those portions of the building that require heating with either hot water, vapor or low pressure steam as the heating medium, it is necessary to keep in mind the following five important factors:—

1. Ample radiation, properly balanced to suit the different rooms and well placed to localize the fresh air supply until it is warmed.

2. The Boiler should be of sufficient capacity, that when connected to ample chimney flue, it will be able to supply full heating efficiency to every radiator on the coldest day of the heating season.

3. That the Pipe—Mains, Branches and Risers—must be of the right size with proper grade and balanced fitting to evenly supply all radiators throughout as well as merchantable pipe and fitting sizes, when installed by skilled workmen, will allow.

4. That it is necessary to remove all air from both radiators and piping system to insure full efficiency from the radiators.

5. If specialties are used, they should be of a well known, reliable make supplied by agents who are capable and willing to advise as to their proper use and installation.

There are many short rules in existence for figuring radiation required in the different styles of heating, but due to necessity on account of their shortness they do not provide full data to meet the many varying conditions met with in practice.

The class of material of which the walls, roof and closures to a building are constructed of, also the method and quantity of materials used have to be considered in estimating the number of units of heat necessary to be provided from the radiators installed.

We therefore give in the following pages, tables compiled from different authorities as guides to the use of the B. T. U. in proportioning radiation to meet many of the different requirements of buildings, constructed by skilled workmen with materials in common use.

The B. T. U.

Its Use in Proportioning Radiation

To proportion radiation using the B. T. U. as a basis it is necessary to consider not only the heat losses out through the building material enclosing rooms, but also to take care of the heat losses when outside air leaks in through wall openings providing a supply of fresh cold air and thus changing and chilling the inside air. The losses out through walls etc, is called the K. Factor and this Factor has been carefully determined for most of the important building materials and is given as the amount of heat transmitted in B. T. U. per square foot of surface, per hour, per degree difference between air temperature required in room and that of air outside. First determine the temperature wanted inside which is customary to place at from 68° to 70° in every occupied room in building excepting the bath rooms which are taken at 80° F. The outside temperature varies in different localities due to latitude, local prevailing winds and altitude. The low record temperature in any locality is not taken generally as requiring protection but a temperature about $\frac{1}{3}$ higher between that and zero is taken for a base minimum temperature for calculating radiation.

K. Factor of Heat Transmission Losses

Walls

	A	B	C	D	E	F	G
9" thick.....	.42	.35	.27	.50	.45	.35	.31
13" thick.....	.35	.30	.24	.38	.35	.30	.26
18" thick.....	.30	.26	.22	....	....	....	....
22" thick.....	.25	.22	....	....	....	....	....

A—Plain brick, filled joints.

B—Brick, plastered one side on brick.

C—Brick, back plastered, furring, lath and plaster.

D—Concrete slab.

E—Hollow cement block.

F—Hollow block, furring, lath and plaster.

G—Hollow terra cotta tile, plaster outside and inside.

Note—Brick veneer walls should be figured the same as 12" brick.

The B. T. U. (Continued)

Frame Walls

Clapboard, paper, studding, lath and plaster.....	32
Clapboard, sheathing, studding, lath and plaster.....	28
Clapboard, paper, sheathing, studding, lath and plaster.	24

Wall and Roof Openings

Single Window.....	1.00	Single Skylight.....	1.00
Double Window.....	.55	Monitor Glass.....	.55
Entrance Doors.....	2.50 and upwards.		

Ceiling and Roof

Lath and plaster, (no flooring).....	50
Lath and plaster, floor above.....	28
Metal, sheathing, floor above.....	24
Sheathing, paper and shingles.....	24
Sheathing, paper and metal.....	28
Concrete, tar and felt.....	38

Air Changes

To state that the air in any room is changed any given number of times per hour is not strictly accurate as a positive change does not actually occur, the fresh air mixes with and improves the vitiated air to a point suitable for healthful respiration. The supply of fresh air required, varies according to the class of building being heated and how many persons will occupy the same. At least one change of air per hour should be allowed for in any class of building that is heated. Residences generally are allowed for at 3 changes per hour in entrance hall, $1\frac{1}{2}$ to 2 changes in all rooms connecting with hall on first floor and $1\frac{1}{2}$ change per hour in all other rooms throughout, making extra allowances for fire places. It requires 144 B. T. U. to heat 100 cubic feet of air from zero to 70° F. On next page is given F. Schumann's table of B. T. U. required for heating air through different changes of temperature.

B. T. U. Required For Heating Air

This table specifies the quantity of heat in British Thermal Units required to raise one cubic foot of air through any given temperature interval.

External Temp.	Temperature of Air in Room									
	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°
-40°	1.802	2.027	2.252	2.479	2.703	2.928	3.154	3.379	3.604	3.829
-30°	1.540	1.760	1.980	2.200	2.420	2.640	2.860	3.080	3.300	3.520
-20°	1.290	1.505	1.720	1.935	2.150	2.365	2.580	2.795	3.010	3.225
-10°	1.051	1.262	1.473	1.684	1.892	2.102	2.311	2.522	2.732	2.943
0°	0.822	1.028	1.234	1.439	1.645	1.851	2.056	2.262	2.467	2.673
10°	0.604	0.805	1.007	1.208	1.409	1.611	1.812	2.013	2.215	2.416
20°	0.393	0.590	0.787	0.984	1.181	1.378	1.575	1.771	1.968	2.165
30°	0.192	0.385	0.578	0.770	0.963	1.155	1.345	1.540	1.733	1.925
40°	0.000	0.188	0.376	0.564	0.752	0.940	1.128	1.316	1.504	1.692
50°	0.000	0.000	0.184	0.367	0.551	0.735	0.918	1.102	1.286	1.470
60°	0.000	0.000	0.000	0.179	0.359	0.538	0.718	0.897	1.077	1.256
70°	0.000	0.000	0.000	0.000	0.175	0.350	0.525	0.700	0.875	1.049

Above table from F. Schumann's Manual of Heating and Ventilation.

The B. T. U. (Continued)

Radiators of the three-loop pattern, 38" high, being the type mostly in demand are taken as the standard of efficiency when 150 B. T. U. is figured as given off from one square foot of heating surface in hot water heating. Some other types and those of lower height give greater efficiency per square foot, though generally in residence hot water heating this is not taken into consideration, the lower heights being usually installed in the rooms of more constant usage, when higher temperature is maintained and the greater number of air changes take place owing to the frequent opening of the entrance door.

When the total B. T. U. loss is calculated divide by 150, this gives the sq. ft. of radiation for hot water heating. Divide by 240 gives the sq. ft. of radiation for steam heating.

Example

Figuring radiation in the B. T. U. way for a room 12½ ft. x 18 ft. x 10 ft. with the 12½ ft. front facing west and the 18 ft. side facing north, allowing 25 feet of window openings in west wall and 30 feet of openings in north wall on which is also located a fire place.

The prevailing cold winds being from the north with exposure factor of 1.10.

55 ft. wall openings with single thick glass closures x K. 1.00.....	55 B. T. U. loss
250 ft. brick walls, 13-in. thick type C. x K. 24.....	60 B. T. U. loss
	115 B. T. U.

A total loss of 115 B. T. U. per hour, per degree change, which figured at 70° change makes 8050 B. T. U. loss per hour through G. and W.

The B. T. U. required for 2 air changes (which includes ½ change extra for fire place loss) in 2200 cubic feet of contents with 70° increase in temperature is:

2 C. x 2200 x 1.44 U. = 6336 B. T. U. per hour for air changes.

8050 + 6336 x 1.10 Exposure factor = 15825 B. T. U. total heat to be supplied from radiators.

In hot water heating, this 15,825 B. T. U. loss divided by 150 gives 105 sq. ft. of 3-loop, 38" hot water radiation as being required for this room.

In steam heating this 15,825 B. T. U. loss divided by 240 gives 66 sq. ft. of 3-loop, 38" steam radiation as being required for this room.

Note—The radiation figured above requires full efficiency to procure good results.

Locating Radiation

Radiators should be located, when circumstances will permit, where the greatest inflow of cold air to the room occurs, hence the advantage of locating the radiator below the window or near the entrance door. When the radiator is located here and left uncovered it gives efficiency and localizes the cold air from outside.

When Radiation Should Be Increased

Radiators recessed in walls or under windows with solid top over same and partly solid fronts are not more than 70% efficient.

Radiators recessed in walls or under windows with solid top over same but exposed in front are not more than 80% efficient.

Radiators recessed in walls or under windows with partly open top over same but exposed in front are not more than 90% efficient.

When fire places are located in rooms they increase the warmed air losses in that room making it necessary to increase the radiation by from $\frac{3}{4}$ to 1 air change depending on the control of flue damper when fire place is not in use.

Increase radiation in rooms exposed to prevailing cold winds which vary in velocity in different localities, at different heights from ground and from different points of compass. The allowance factor on north side varies from 1.10 to 1.33 and on east or west sides from 1.07 to 1.15.

When rooms are being heated, either ceilings, floors or partitions separating them from other unheated spaces the losses allowed for should be 40% to 50% of that allowed for exposed wall.

When rooms have ceiled roof rafters exposed to outside air, the losses allowed for should not exceed that for the same area of exposed wall.

When rooms have ceiled floor, joist exposed to outside air, the losses allowed for should be an increase of 20% over that allowed for exposed wall.

When direct-indirect radiators are used, the heating surface in same should exceed by from 25% to 30% over that allowed, when direct radiators are installed.

When indirect radiators are used, with gravity air supply, the heating surface in same should exceed by from 50% to 60% over that figured for direct radiation heating.

When Radiation Should Be Increased (Continued)

Note—In schools, churches and other buildings, where heavy ventilation is required, it is necessary to use other special rules for determining the amount of ventilating radiation required and its equivalent in direct radiation, for no matter what type or kind of radiation is used it is necessary to know its equivalent in direct radiation, and the heaviest load it will be called on to bear through steady or intermittent supply of heat to same.

When portions or all of the buildings are heated in day time only and the location of the building is not exposed increase radiation 10%. When heated in day-time only and the building is in exposed location increase radiation from 15% to 20%.

When building is heated intermittently during the heating season and the period of non-heating extends over 24 hours, increase radiation from 20% to 30%.

Many heating contractors make the error of installing too little radiation. A little extra surface improves results. A balanced apparatus of ample size can be regulated to give economy as well as good results; this pleases the owner which cannot be done if the apparatus is too small and requires forcing.

Radiation Figured By Short Rule

A shorter rule to estimate radiation required in heating residences and smaller buildings with hot water, on open tank gravity system, to maintain 70 degrees temperature inside when zero outside, and water in radiators at 160° F., is as follows:—

Divide air to be heated.....	by 60
Divide window and door openings if single thick..	by 2.5
Divide window and door openings if double thick..	by 4.5
Divide exposed entrance doors if single thick.....	by 1.1
Divide exposed entrance doors if double thick....	by 1.5
Divide wall surface if brick type C., 8" thick.....	by 10
Divide wall surface if brick type C. 12" thick.....	by 11.25
Divide floor surface above enclosed unheated space....	by 22.5
Divide floor surface above outside air with joist ceiled.....	by 8
Divide ceiling surface below pitched roof rafters..	by 12
Divide ceiling surface below flat concrete roof.....	by 8

Radiation figured by Short Rule (Continued)

Make allowance in rooms to prevailing winds if North add at least 10%.

Make allowance in rooms to prevailing winds if East or West add at least 7%.

The total results from above are suitable for first floor rooms.

Second floor rooms may be reduced 6% if Risers are protected.

Third floor rooms may be reduced 10% if Risers are protected.

For every 1° greater difference in temperature add 1½% to radiation and every 1° less difference deduct 1½% from radiation.

Method of Figuring Radiation By Carpenters Rule

Find cubical contents and multiply by .02.

Find total amount of exposed wall space less total amount of glass, divide by 4.

Find total amount of glass (single—full quantity; double—½ quantity).

Find total amount of ceiling or roof unspaced and unheated and divide by 50.

Find total amount of floors above unheated, divide by 50.

Add the above all together and multiply by the difference between outside and inside temperatures and divide by the efficiency of the radiator—hot water 150 B. T. U.—steam 250 B. T. U.—and the answer is the square feet of heating surface necessary.

Example :

A room 10x12x9—two sides exposed.

One window 2' 6" x 4' 0", outside—10°, inside 70°.

Cubic contents 1080 multiplied by .02	22
Exposed wall, 198 less glass 10 = 188 ÷ 4	47
Glass—single 10	10
Ceiling below unheated space 120 ÷ 50	2½
Floor space above unheated space 120 ÷ 50	2½

Total 84

Difference in temperatures 80 degrees.

Therefore 84x80 = 6720.

Therefore 6720 ÷ 150 = 45 sq. ft. heating surface.

Dimensions and Capacities of Standard Welded Pipe

Size of Pipe Inches	Length of Pipe Thread in Inches	Length of Pipe Per Sq. Ft. of Heating Surface	Area of Pipe in Sq. Inches Internal	Cu. Ft. of Flow at a Uniform Velocity of 3.33 Ft. Per Minute	Length of Pipe Containing 1 Cu. Ft. of Water
$\frac{1}{2}$	$\frac{1}{2}$	4.547	0.304	0.007	473.91
$\frac{3}{4}$	$\frac{9}{16}$	3.638	0.533	0.0123	270.03
1	$\frac{5}{8}$	2.905	0.864	0.02	166.62
$1\frac{1}{4}$	$\frac{11}{16}$	2.301	1.496	0.0346	96.275
$1\frac{1}{2}$	$\frac{13}{16}$	2.010	2.036	0.0470	70.733
2	$\frac{7}{8}$	1.608	3.356	0.0716	42.913
$2\frac{1}{2}$	1	1.329	4.788	0.1106	30.077
3	1	1.091	7.393	0.1710	19.479
$3\frac{1}{2}$	$1\frac{1}{16}$	0.955	9.887	0.2290	14.565
4	$1\frac{1}{8}$	0.849	12.730	0.2946	11.312
$4\frac{1}{2}$	$1\frac{1}{4}$	0.764	15.947	0.3690	9.030
5	$1\frac{1}{4}$	0.687	20.006	0.4630	7.198
6	$1\frac{3}{8}$	0.577	28.890	0.6686	4.984
7	$1\frac{1}{2}$	0.501	38.738	0.8966	3.717
8	$1\frac{5}{8}$	0.443	50.027	1.1580	2.878

One cubic foot of water weighs.....62.42 lbs. at 40° F.

One cubic foot of water weighs.....60.98 lbs. at 160° F.

One cubic foot of water weighs.....60.55 lbs. at 180° F.

One cubic foot of water weighs.....60.07 lbs. at 200° F.

One cubic foot of water contains

approximately.....7.48 U. S. galls.

One cubic foot of water contains

approximately.....6.24 Imperial galls.

The velocity of Rising Branches taken away from horizontal mains for hot water heating, located in basement, is taken as proportionate to their height above the main which in a gravity system is about .02 for every foot in height for buildings not over 3 stories in height.

The extra velocity in radiators at the higher elevations may be so controlled that they balance with those at lower elevations, this being done with valves or special fittings. If balancing is not done the area of the horizontal main in basement should be not less than 90% of

the combined areas of the rising branches taken away from same to insure a full supply to the radiators on the lower floor, especially those at the ends of mains where the mains should have an increase of 50% over riser.

Storage Tank Capacities

Diameter Inches	Length Feet	Capacity U. S. Gallons	Regular Open's. Inches
24	4	100	1½
24	5	120	1½
24	6	140	1½
30	4	145	2
30	5	180	2
30	6	220	2
30	7	250	2
30	8	295	2
36	6	315	2
36	7	365	2
36	8	420	2
36	10	525	2
42	6	435	2
42	7	500	2
42	8	575	2
42	10	720	2
42	12	865	2
42	14	1000	2

Pressure of Water For Each Foot in Height

Feet in Height	Pounds per Sq. Inch	Feet in Height	Pounds per Sq. Inch.	Feet in Height	Pounds per Sq. Inch.
1	.43	15	6.49	50	21.65
2	.86	20	8.66	70	30.32
5	2.16	25	10.82	80	34.65
10	4.33	40	17.32	100	43.31

Note—Above information is quoted from standard authorities. Not guaranteed.

Horizontal Return Tubular Stationary Boilers

STANDARD DIMENSIONS OF LOW PRESSURE STEAM HEATING BOILERS

Diameter of Boiler, ins.	36	36	42	42	48	48	48	54	60	60	66	66	72	72
Length of Boiler, ft.....	10	12	10	12	14	10	12	14	12	14	14	14	14	16
No. of Tubes, 3 ins.....	32	32	38	38	38	44	44	56	70	70	92	92	108	16
No. of Tubes, 3½ ins..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	92
Total Heating Surface, square feet.....	305	365	363	434	504	420	503	628	774	899	1156	1217	1344	1500
Grate Area, sq. ft.....	9	11	10.7	12.9	12.9	12	14.6	16.5	18.2	21	22.9	26.1	24.7	28
Thickness of Shell, ins.	¼	¼	¼	¼	¼	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8
Thickness of Heads, ins.	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	7/16	7/16	7/16	7/16
Diameter of Stack, ins.	18	18	20	20	20	22	22	24	26	26	30	30	34	34
Diameter of Outlet, ins.	4	4	5	5	5	6	6	6	7	7	8	8	8	8
Diam. of Return, ins....	3	3	4	4	4	5	5	5	6	6	7	7	7	7
Dia. Safety Valve, ins..	3	3	3	3½	3½	3	3½	3½	4	4	2-3	2-3½	2-3½	2-3½
Total Height, feet-ins.	6-1½	6-6½	7-1	7-1	7-1	7-6	7-6	8-4½	9-3	9-3	10-2	10-2	10-11	10-11
Weight of Boiler, with Fixtures, lbs.....	4850	5350	5800	6400	7000	7400	8200	10100	12000	13250	16100	17500	18750	20500
Common Brick.....	6500	7000	8000	9000	10000	10500	11000	12500	14000	15500	17500	18000	19000	19500
Fire Brick.....	600	650	700	700	700	800	800	900	950	950	1000	1000	1050	1050
Horse Power at 15 to 1 Rating.....	20	25	25	30	34	28	34	42	52	60	77	81	90	100

Note—Under Ontario Government Laws, all H. R. T. Boilers, 48" diameter and over, have a man-hole in the front head, as well as in the shell. It is because of this that the H. P. rating of 42" Boilers is much the same as the H. P. ratings of 48" Boilers.

All Boilers below 48" have man-hole in shell and hand-hole in each head.

H. R. T. Boilers used for heating purposes only, do not require to be suspended. H. R. T. Boilers used for heating purposes are only allowed to carry a working pressure of 15 pounds. The heating power of these Boilers as expressed in square feet of direct radiation, is estimated at 100 sq. ft. for each H. P.

Fixtures include full cast iron front and doors, grate bars, bearers, arch plate, dead plate, back arch bars, soot door and frame, steam gauge, water gauge, gauge cocks, spring loaded safety valve, feed valve, check valve, and asbestos packed stop cock, firing tools and automatic damper regulator.

Area of Circles

Dia. Ins.	Area	Dia. Ins.	Area	Dia. Ins.	Area	Dia. Ins.	Area
$\frac{1}{8}$	.012	7	38.48	19	383.53	37	1075.2
$\frac{1}{4}$	.049	$7\frac{1}{2}$	44.17	$19\frac{1}{2}$	298.64	38	1134.1
$\frac{3}{8}$	.110	8	50.26	20	314.16	39	1194.6
$\frac{1}{2}$	.196	$8\frac{1}{2}$	56.74	$20\frac{1}{2}$	330.06	40	1256.6
$\frac{3}{4}$	.441	9	63.61	21	346.36	41	1320.2
1	.785	$9\frac{1}{2}$	70.88	$21\frac{1}{2}$	363.05	42	1385.4
$1\frac{1}{8}$	.994	10	78.54	22	380.13	43	1452.2
$1\frac{1}{4}$	1.227	$10\frac{1}{2}$	86.59	$22\frac{1}{2}$	397.60	44	1520.5
$1\frac{1}{2}$	1.767	11	95.03	23	415.47	45	1590.4
$1\frac{3}{4}$	2.405	$11\frac{1}{2}$	103.87	$23\frac{1}{2}$	433.73	46	1661.9
2	3.141	12	113.10	24	452.39	47	1734.9
$2\frac{1}{4}$	3.976	$12\frac{1}{2}$	122.71	$24\frac{1}{2}$	471.43	48	1808.5
$2\frac{1}{2}$	4.908	13	132.72	25	490.8	49	1885.5
$2\frac{3}{4}$	5.939	$13\frac{1}{2}$	143.13	26	530.9	50	1963.5
3	7.06	14	153.94	27	572.5	51	2042.8
$3\frac{1}{4}$	8.29	$14\frac{1}{2}$	165.13	28	615.7	52	2123.7
$3\frac{1}{2}$	9.62	15	176.71	29	660.5	53	2206.1
$3\frac{3}{4}$	11.04	$15\frac{1}{2}$	188.69	30	706.8	54	2290.2
4	12.56	16	201.06	31	754.7	55	2375.8
$4\frac{1}{2}$	15.90	$16\frac{1}{2}$	213.82	32	804.2	56	2463.0
5	19.63	17	226.98	33	855.3	57	2551.7
$5\frac{1}{2}$	23.75	$17\frac{1}{2}$	240.52	34	907.9	58	2642.0
6	28.27	18	254.46	35	962.1	59	2733.9
$6\frac{1}{2}$	33.18	$18\frac{1}{2}$	268.80	36	1017.8	60	2827.4

Area of a circle = Diameter Squared $\times$.7854.Circumference of a circle = Diameter $\times$ 3.1416.Number of Square Feet of Heating Surface
in 100 Feet of Ordinary Pipe.

From 1 to 6 Inch Diameter

Pipe	Square Feet	Pipe	Square Feet
1 inch	34.43	$3\frac{1}{2}$ inch	104.72
$1\frac{1}{4}$ "	43.30	4 "	117.81
$1\frac{1}{2}$ "	49.75	$4\frac{1}{2}$ "	130.90
2 "	62.17	5 "	145.64
$2\frac{1}{2}$ "	75.26	6 "	173.44
3 "	91.63		

Blowing Off Steam Boilers

After a steam or vapor boiler has been in operation for a short time, grease, oil, scale, and other foreign matter will accumulate in the boiler, which will invite various kinds of trouble and can only be eliminated by thorough cleaning.

The following method of blowing off is recommended:

1. Close all radiator supply valves and when used remove the thermostatic member of all return line valves, or if boiler is valved close both supply and return. Blow down the boiler through bottom blow-off under a pressure of at least 5 lbs. Where a blow-off opening is tapped in boiler near water line connect a pipe with gate valve to blow-off opening and blow oil and grease from boiler.

2. Remove the safety valve and put acid vinegar (Acetic acid) in the boiler as follows:

Boilers up to 1,000 sq. ft., capacity—3 gallons.

Boilers up to 2,000 sq. ft., capacity—4 gallons.

Boilers up to 4,000 sq. ft., capacity—5 gallons.

Boilers up to 6,000 sq. ft., capacity—7 gallons.

Replace the safety valve and operate the entire plant for one day.

3. Again remove the safety valve in the absence of a blow-off opening and connect a pipe with gate valve to the outside on convenient drain. This pipe to be not less than size of safety valve. With water in boiler at proper level and valve in top blow-off pipe closed, build a very hot coal fire creating a pressure of 5 to 10 lbs. Open top blow-off valve and let water and steam pass through the blow-off line to drain—keep up a pressure between 5 and 10 lbs.—and carefully supply water constantly into boiler so as to keep gage glass filled to top—keep this up without interruption for 2 to 4 hours. During the last hour fill boiler full of water allowing the hot water to flow through, and out of top blow-off pipe to drain.

4. Close the water-feed valve and let steam and water flow through top blow-off line until water level in boiler is at top of gage glass—close the gate valve in top blow-off line and with at least 10 lbs. steam pressure—draw fire quickly and open the bottom blow-off valve, and entirely drain the boiler. Allow the boiler to cool—replace if any thermostatic-members in return line valves — replace safety valve—close bottom blow-off valve and fill boiler with fresh water to proper level.

Sometimes one blowing off will not give the desired results in which case the operation must be repeated or continued until the boiler is thoroughly free from all foreign matter.

Blowing Off Steam Boilers (Continued)

With plants using vacuum and boiler feed pump the return to pump should be closed off and all condensation passed to drain for at least a week and then the boiler should be cleaned as above.

To avoid all this expense and trouble, some heating contractors do not allow any return water from a new system to enter the boiler during the time temporary heat is on and while the men are working on the job. The valve on the return main is closed, a plug removed from a tee just outside the return valve and the feed-water valve cracked open enough to maintain the water in the boiler up to the water line under close watching by one of the steam fitters. At night the fire is banked, the plug in the return replaced and the return valve opened. With a banked fire practically no grease enters boiler from the system during night.

Grease in a boiler not only prevents proper steam generation but it is liable to cause damage to boiler. A practical method of determining when the water in a boiler is free from oil, is to draw a sample of the water from the gage cock into a vessel, say about 3 in. in diameter, and at least 8 to 12 in. deep. Have about 2 or 3 in. of water in the vessel and boil it over a gas plate or other hot fire. If there is oil in the water the boiling will cause it to foam and overflow the vessel; while if the water is clear and free from oil and alkali, one can always see the top of the boiling water emitting bubbles of steam but not foaming.

How to Clean Water Gage Glass on Steam Boiler Without Removing It.

1. Pour at least a tablespoon of raw muriatic or other acid into a cupful of hot water drawn from the boiler.
2. Close both water-gage valves.
3. Open top water-gage valve and also pet cock at bottom, and blow water out of glass. Then immediately close the top valve and submerge end of pet cock in cup of hot water solution. A vacuum is at once created in gage glass which causes solution in the cup to rush in.
4. Keep the pet cock immersed and operate the top valve, slightly opening and closing, alternately expelling and drawing in the solution until all grease, oil, or other matter adhering to the inside of the glass is cut out. Then close pet cock and open both water-gage valves.

It is necessary to have 1 lb. pressure of steam or more on the boiler before commencing this operation, which need not occupy more than 10 minutes. The result is a clean glass without the risk of breakage and probable renewal of gaskets which is frequently the case when removing the glass for cleaning.

Telegraph and Cable Code

Cable and Telegraph Address "Woodyatt" Guelph

Shipments

Can you ship.....	PASTILE
We can ship.....	PASTORAL
Have you shipped.....	PASTURE
We have not shipped.....	PATERNAL
We expect to ship.....	PATHOS
How soon could you ship.....	PATRIOT
We have shipped.....	PAVILION
When will order be shipped.....	PEACH
We shipped on.....	PEARL
We shipped to-day.....	PECTORAL
Can ship to-day.....	PEDDLE
Can ship to-morrow.....	PEDESTAL
Can ship in three days.....	PEDIGREE
Can ship in four days.....	PEERAGE
Can ship in five days.....	PELICAN
Can ship in six days.....	PENANCE
Can ship in one week.....	PENDULUM
Can ship in ten days.....	PENINSULA
Can ship in two weeks.....	PENMAN
Can ship in three weeks.....	PENSION
Can ship in one month.....	PENSIVE
Can ship on receipt of order.....	PEONY
Ship all you can.....	PEPPER
Ship all you can, mail particulars.....	PERCH
Ship all you can, telegraph particulars.....	PERCUSSION
Forward by mail.....	PERFORM
Ship by express.....	PERFUME
Ship by freight.....	PERIL
Ship by boat.....	PERPLEX
Ship by lake and rail.....	PERSUADE
Ship by Canadian National Railway.....	PERVERT
Ship by Canadian Pacific Railway.....	PETITION
Ship by Temiskaming Railway.....	PETINON
Has order been shipped.....	PETRIFY
By what route did you ship.....	PETULANT
Wire reply.....	PHALANX
Quote freight rate on car lot.....	PHONETIC
Quote freight rate on less than car lot.....	PHOSPHATE

Code (Continued)

Tracers

Trace shipment.....	PIANO
Trace shipment by wire	PIAZZA
Communicate result of tracer.....	PICKEREL
We have traced shipments	PICKLE
We will trace shipments.....	PIGEON
We will trace shipment by wire.....	PIGMENT
Trace goods shipped order number.....	PILGRIM
We have traced goods shipped order number.....	PILLAGE

Prices and Quotations

Telegraph list price.....	PARISH
Telegraph net price.....	PARODY
Quote by mail lowest price.....	PARROT
We name you list prices.....	PARSLEY
We quote you net prices.....	PARTICLE
What price can we quote.....	PARTRIDGE
You can sell.....	PASSENGER
Cannot sell any more.....	PASSIVE
Mail best price and quickest delivery.....	PASTE

Discounts

At what discount will you sell us.....	PILOT
At what discount can we sell.....	PINAFORE
Name your lowest discounts.....	PIONEER
We quote you discounts	PIPPIN
Discount will be.....	PIRATE
We cannot change present discount.....	PITCHER
We hereby notify you of the change in discounts to.....	PITTANCE
This discount only quoted for immediate shipment.....	PLACARD
We hereby withdraw all discounts.....	PLAQUE

Quantity

100 feet.....	QUANDARY	2,000 feet.....	QUENCH
150 feet.....	QUARRANT	2,500 feet.....	QUERL
200 feet.....	QUARRELL	3,000 feet.....	QUERY
250 feet.....	QUART	3,500 feet.....	QUESTO
300 feet.....	QUARTEN	4,000 feet.....	QUIBBLE
350 feet.....	QUARTO	4,500 feet.....	QUICKEN
400 feet.....	QUARTZ	5,000 feet.....	QUICKSAND
500 feet.....	QUASHO	10,000 feet.....	QUIESCENT
600 feet.....	QUASSIA	15,000 feet.....	QUIET
700 feet.....	QUAVER	20,000 feet.....	QUIETUS
800 feet.....	QUAY	25,000 feet.....	QUILL
1000 feet.....	QUEEN	35,000 feet.....	QUILT
1200 feet.....	QUEER	50,000 feet.....	QUINCE
1500 feet.....	QUELL		

Code (Continued)

"COLONIAL" PATTERN		PLAIN—2 LOOPS WIDE				HOT WATER OR STEAM	
No of Sections	2 x 45	2 x 38½	2 x 32½	2 x 30	2 x 26½	2 x 23	2 x 20½
2	MACAR	MAJOL	MANFUL	MARBLY	MASCOTT	MAKISH	MELISSA
3	MACARON	MAJOR	MANGE	MARCO	MASH	MAXILLA	MELLOW
4	MACANO	MALABAR	MANGO	MARCUS	MASHED	MAXIM	MELODE
5	MACAW	MALADY	MANGY	MARDEN	MASKO	MAZE	MELODIC
6	MACDUF	MALAGA	MANIA	MARE	MASON	MIZILY	MELON
7	MACE	MALAPERT	MANAC	MARENA	MASSACRE	MAZINESS	MELTER
8	MACEDON	MALAR	MANOKIN	MARENGO	MASSIVE	MAURKA	MENTO
9	MACERT	MALAY	MANITOU	MARGOT	MASTER	MEAD	MEMOIR
10	MACKREL	MALAPOR	MANLESS	MARIAN	MASTERY	MEADOW	MENDED
11	MACROP	MALICOS	MANLY	MARIGOLD	MASTIC	MEAGER	MENGITE
12	MACROT	MALIGN	MANNISH	MARINATE	MASTICAT	MEALY	MENIAL
13	MACULATE*	MALIGNER	MANSARD	MARINER	MASTIFF	MEANDER	MENTAL
14	MACULE	MALLARD	MANSE	MARISH	MASTLESS	MEANLY	MENTOR
15	MACLOSE	MALLET	MANSION	MARITAL	MASTODON	MEDAL	MEPHIT
16	MADAM	MALEOS	MANTEL	MARITIME	MASTOID	MEDALIST	MERCATOR
17	MADDEN	MALLOW	MANTIC	MARKER	MATADORE	MEDDLE	MERCURAL
18	MADDER	MALTO	MANTIGER	MARLINE	MATED	MEDIA	MERCURY
19	MADERA	MALTESE	MANTISA	MARMOT	MATELESS	MEDINO	MERCIVAL
20	MADMAN	MALSTOR	MANTUA	MAROON	MATER	MEDICORE	MERGE
21	MADRAL	MALVA	MANUAL	MARPLOT	MATHIAS	MEDIATE	MERGED
22	MADWORTH	MALVAY	MANUARY	MARQUIS	MATIN	MEDLEY	MERINO
23	MAGOT	MAMON	MAPLE	MARROW	MATINO	MEDULA	MERMAID
24	MAGIC	MAMOTH	MAPPER	MARRY	MATRON	MEDUSA	MERMAN
25	MAGLIP	MANACLE	MARABOU	MARS	MATRONLY	MEEK	MESHO
26	MAGNA	MANAKIN	MARACAN	MARSALA	MATTING	MEGARAN	MESMER
27	MAGNATE	MANDARIN	MARACOCK	MARSH	MATTOCK	MEGRIM	MESTINO
28	MAGNITY	MANDATE	MARANTA	MARSHY	MATRESS	MELANGE	METALIC
29	MAGNOLIA	MANDOLIN	MARAUD	MARTIAL	MAUNCH	MELANIC	METEOR
30	MAGPIE	MANRAKE	MARAUDER	MARTINET	MAURICE	MELASIC	METORIC

Note—Square top radiators will be shipped unless specified round top.

Code (Continued)

RADIATORS

HOT WATER OR STEAM

PLAIN—3 LOOPS WIDE

“EMPIRE” PATTERN

No. of Sections	3 x 38	3 x 32	3 x 26	3 x 22	3 x 18
2	RABET	REACH	RIB	ROLICK	RUBLE
3	RABI	REACT	RICE	ROMAN	RUBRIC
4	RABLE	REAL	RICHER	ROMANCE	RUBY
5	RACE	REALM	RICK	ROMP	RUCKER
6	RACER	REAM	RIDER	ROOD	RUDER
7	RACK	REAP	RIDGY	ROOKER	RUFF
8	RACKET	REAPER	RIFE	ROOMER	RUFLE
9	RACY	REASER	RILL	ROOSTER	RUGER
10	RADIAL	REAVE	RIMY	ROOTER	RULER
11	RADICLE	REBEL	RINGLET	ROPY	RUME
12	RADIX	REBUS	RINSE	ROSED	RUMBLE
13	RAFF	RECAN	RIOTOUS	ROSTRAL	RUMPEX
14	RAGER	RECAST	RIPEN	ROTAR	RUMBUS
15	RAILER	RECENT	RIPLE	ROTAT	RUNER
16	RAIN	RECIP	RISKER	ROTAX	RUNT
17	RAISE	RECITAL	RIVER	ROTUND	RUSTIC
18	RAISIN	RECK	ROACH	ROUBLE	RUSTLE
19	RAKE	RECKER	ROAM	ROUGE	RUTER
20	RAM	RECLIN	ROAST	ROUGHER	RUTHEX
21	RANK	REED	ROBIN	ROUSE	RUTHLESS
22	RAPT	REEL	ROCKER	ROVER	RUTISH
23	RARE	REGAL	RODENT	ROWEL	RUXER
24	RAZE	REGATA	ROGUE	ROXER	RYER
25	RAZOR	RELAY	ROISTER	ROXY	RYOT

RADIATORS

"MONARCH" PATTERN PLAIN—4 LOOPS WIDE HOT WATER OR STEAM

Code (Continued)

No. of Sections	4 x 42	4 x 38	4 x 32	4 x 26	4 x 20	4 x 16
2	ADAM	BOON	CHESTER	DEDHAM	EXETER	FAIRFAX
3	ANDOVER	BOURG	CONCORD	DEER	EXERNA	FERMO
4	ARLING	BEVERLY	CALM	DOVER	EPINAL	FASANO
5	AUBIN	BRISTOL	COLEN	DIEPPE	ELNA	FERARA
6	ARCOLO	BOLSTON	COBURG	DODONA	ELIPO	FOX
7	AUSTER	BROCK	CANTER	DORA	ELPARDO	FOXTON
8	AMIENS	BRUNS	CASALE	DORMAN	EPERNA	FOXALL
9	AUBON	BELLAS	COLONA	DOLPHIN	EXESUS	FAIRVIEW
10	ALCON	BERNAY	CORINTH	DREUX	EUTRIA	FINGAN
11	ARCH	BREST	CYDON	DRESDEN	EASTEN	FLORO
12	ARTA	BARTO	CAMBRIA	DAX	ELACORN	FLOX
13	ARCHOS	BERGA	CEDRIC	DUXO	ELDARO	FLABOR
14	AIX	BELFORT	CELTIC	DUBAN	EPARD	FLUNK
15	AMBOIS	BERGE	CORDOVA	DOYOU	ELPASO	FAN
16	ANET	BRION	COMO	DODO	ENDER	FORTUNE
17	AUGON	BRUNSWICK	CONDE	DUM	ERONO	FLOOM
18	AGEN	BOTHON	CATAN	DUMBO	ERAM	FLUX
19	ALBO	BONDI	CEVA	DURO	ESTATE	FLY
20	ADRIA	BRABANT	CLUNY	DWAN	ESTON	FLURY
21	ADRAX	BAMY	COMIG	DANTER	EATER	FLAMBOY
22	ADER	BEDLE	COLDER	DELIT	EFLE	FORT
23	ABLET	BILTER	CATER	DRAT	EGER	FRAME
24	ARMER	BUTED	CUMER	DOMEL	ELEX	FRESH
25	ATEX	BRAM	CYTEX	DURY	EXIT	FURST

Code (Continued)

COLUMN RADIATORS

**“MONARCH” PATTERN—PLAIN—HOT WATER OR STEAM
4 LOOPS WIDE**

No. of Sections	Inside Diameter	Outside Diameter	4 x 42½	4 x 38½
12	7	24	MEWED	NAKED
14	11	28	MICA	NATIVE
18	13½	30½	MICKLE	NEFARO
18	16½	33½	MICROD	NIGH
20	16	33	MICROL	NOBLE
20	19	36	MIDAS	NADIR
22	17	34	MIDDY	NAFELS
26	22½	39½	MIDLAND	NAGA
28	23	40	MIDRIF	NEVUS
32	35½	52½	MIDWARD	NAGY

**“MONARCH” PATTERN—PLAIN—HOT WATER OR STEAM
2 LOOPS WIDE**

No. of Sections	Inside Diameter	Outside Diameter	2 x 38½	2 x 32½
14	9	21	MIFFED	NAHUM
16	11½	23½	MIGHTY	NAIRN
18	14	26	MIGRATE	NOLA
20	16	28	MIKADO	NOLOD

**“COLONIAL” PATTERN—PLAIN—HOT WATER OR STEAM
2 LOOPS WIDE**

No. of Sections	Inside Diameter	Outside Diameter	2 x 45	2 x 38½
16	7	22	MILDEW	NAMUR
18	9¼	24	MILDNO	NANAS
20	10½	25½	MIMOSA	NANDU
20	11¾	27	MINARET	NANTES
24	12½	27½	MINCE	NAPOS
24	18		MINNOW	NARATA
28	16½	31½	MINDFUL	NARCOT
32	20½	35½	MINERVA	NARBONE
32	22¼	37	MINGLE	NARD
38	25	40	MINION	NARDO
40	24	39	MINK	NARDUS
44	33¼	48	MINUET	NASH
46	36½	51½	MIRACLE	NASSAU

Code (Continued)

RADIATORS

2 loops, hot water.....	PACER	7 foot wall, Victor, vertical.....	PANTRY
3 loops, hot water.....	PACEFIER	7 foot wall, Victor, horizontal.....	PARABLE
4 loops, hot water.....	PACKET	9 foot wall, Victor, vertical.....	PARADE
16 inch, hot water.....	PADDLE	9 foot wall, Victor, horizontal.....	PARADOX
16½ inch, hot water.....	PAGAN	2 loops, steam.....	PALTRY
18 inch, hot water.....	PAINTER	3 loops, steam.....	PANEL
20½ inch, hot water.....	PAGEANT	4 loops, steam.....	PANORAMA
22 inch, hot water.....	PALADIN	16 inch, steam.....	PANTHEON
23 inch, hot water.....	PALETOT	16½ inch, steam.....	PARBOIL
26½ inch, hot water.....	PAINFUL	18 inch, steam.....	PARCEL
30 inch, hot water.....	PALACE	20½ inch, steam.....	PANTHER
32 inch, hot water.....	PALISH	22 inch, steam.....	PARDON
32½ inch, hot water.....	PALETTE	23 inch, steam.....	PAPAL
38 inch, hot water.....	PALLAS	26½ inch, steam.....	PAPOOSE
38½ inch, hot water.....	PALING	30 inch, steam.....	PARACHUTE
42½ inch, hot water.....	PALLID	32 inch, steam.....	PARLEY
45 inch, hot water.....	PALMETTO	32½ inch, steam.....	PARADE
6 foot wall, Empress	PALLOR	38 inch, steam.....	PARSNIP
9 foot wall, Empress, vertical.....	PAMPER	38½ inch, steam.....	PARAGON
9 foot wall, Empress, horizontal.....	PANER	42½ inch, steam.....	PARAMOUNT
12 foot wall, Empress, vertical.....	PANIC	45 inch, steam.....	PARAPET
12 foot wall, Empress, horizontal.....	PANSY	Steam Radiators.....	PARASOL
		Hotwater Radiators.....	PARENT

“CLIMAX” INDIRECT RADIATORS

HOT WATER OR STEAM

No. of Sections in Stack	Code	No. of Sections in Stack	Code	No. of Sections in Stack	Code
2	OAKO	6	OEUS	10	OBTALE
3	OASIS	7	OBNER	11	OBORO
4	OBINDO	8	OBSOLT	12	OBENT
5	OBANO	9	OBSANO		
				Climax, steam	OBER
				Climax, water	OBALT

Code (Continued)

“CANADIAN” SQUARE BOILERS

WATER		STEAM	
W-215.....	OHale	S-215.....	OGong
W-216.....	OHAM	S-216.....	OGale
W-217.....	OHARE	S-217.....	OGALAW
W-265.....	OEAGER	S-265.....	OVAGUE
W-266.....	OEAGLE	S-266.....	OVOID
W-267.....	OEARL	S-267.....	OVALET
W-268.....	Oearn	S-268.....	OVALLEY
W-325.....	OBABBLE	S-325.....	OBALSAM
W-326.....	OBACON	S-326.....	OBAMBOO
W-327.....	OBADGER	S-327.....	OBANANA
W-328.....	OBATTLE	S-328.....	OBANNER
W-329.....	OBaking	S-329.....	OBARREN
W-3210.....	OBALLAD	S-3210.....	OBASIN
W-405.....	OWhIP	S-405.....	OWANG
W-406.....	OWhELP	S-406.....	OWING
W-407.....	OwARP	S-407.....	OwoE
W-408.....	OWREN	S-408.....	OWOLF
W-409.....	OWRIT	S-409.....	OWORK
W-4010.....	OwHY	S-4010.....	OWOOD
W-4011.....	OWRING	S-4011.....	OWORE
W-466.....	ODASH	S-466.....	OMAKER
W-467.....	ODATER	S-467.....	OMASK
W-468.....	ODECK	S-468.....	OMERCY
W-469.....	ODENT	S-469.....	OMINCE
W-4610.....	ODISH	S-4610.....	OMINER
W-4611.....	ODOVER	S-4611.....	OMOCK
W-4612.....	ODUST	S-4612.....	OMUSTY
W-4613.....	ODUSK	S-4613.....	OMUSK

“NEW MONARCH” BOILERS

WATER		STEAM	
W-923.....	PECK	S-923.....	PEAT
W-933.....	PENCE	S-933.....	PEAR
W-943.....	PERPEND	S-943.....	PECAN
W-953.....	PEPBIC	S-953.....	PECTIR
W-963.....	PESTER	S-963.....	PEPTIC

Code (Continued)

"NEW MONARCH" BOILERS—Continued

WATER		STEAM	
W-924.....	PEBBLE	S-924.....	PEASE
W-934.....	PENT	S-934.....	PESKY
W-944.....	PEERD	S-944.....	PEN
W-954.....	PERCER	S-954.....	PEG
W-964.....	PETARD	S-964.....	PERIOD
W-935.....	PERSIST	S-935.....	PENNANT
W-945.....	PEEVIT	S-945.....	PENLITE
W-955.....	PERT	S-955.....	PELF
W-965.....	PEWTER	S-965.....	PERKY

"NEW SOVEREIGN" BOILERS

0C.....	SALL	5C.....	SAKE
1C.....	SAP	5½C.....	SAUCE
1½C.....	SALT	6C.....	SAME
2C.....	SACK	6AC.....	SADDLE
2½C.....	SABOT	6½C.....	SAIL
3C.....	SAND	6½AC.....	SAVOY
3½C.....	SATIN	7C.....	SAGE
4C.....	SAVE	7½C.....	SAMBO
4½C.....	SAUCER	8C.....	SARDO

BUNGALOW HEATERS

10-0X.....	ASTER	15B.....	BACIT
913B.....	BEDDLER	17B.....	BAILOR
914B.....	BELT	19B.....	BALENT
210C.....	TANTER	22B.....	BANDEM

HOT WATER SUPPLY BOILERS

9.....	ADANAC	1117.....	TAILOR
120T.....	GALER	1119.....	TALENT
160T.....	GAMER	1122.....	TANDEM
210C.....	TANTER	1010.....	TEASEL
1110.....	TABARD	1012.....	TELLER
1112.....	TABLET	1015.....	TEMPER
1115.....	TACIT		

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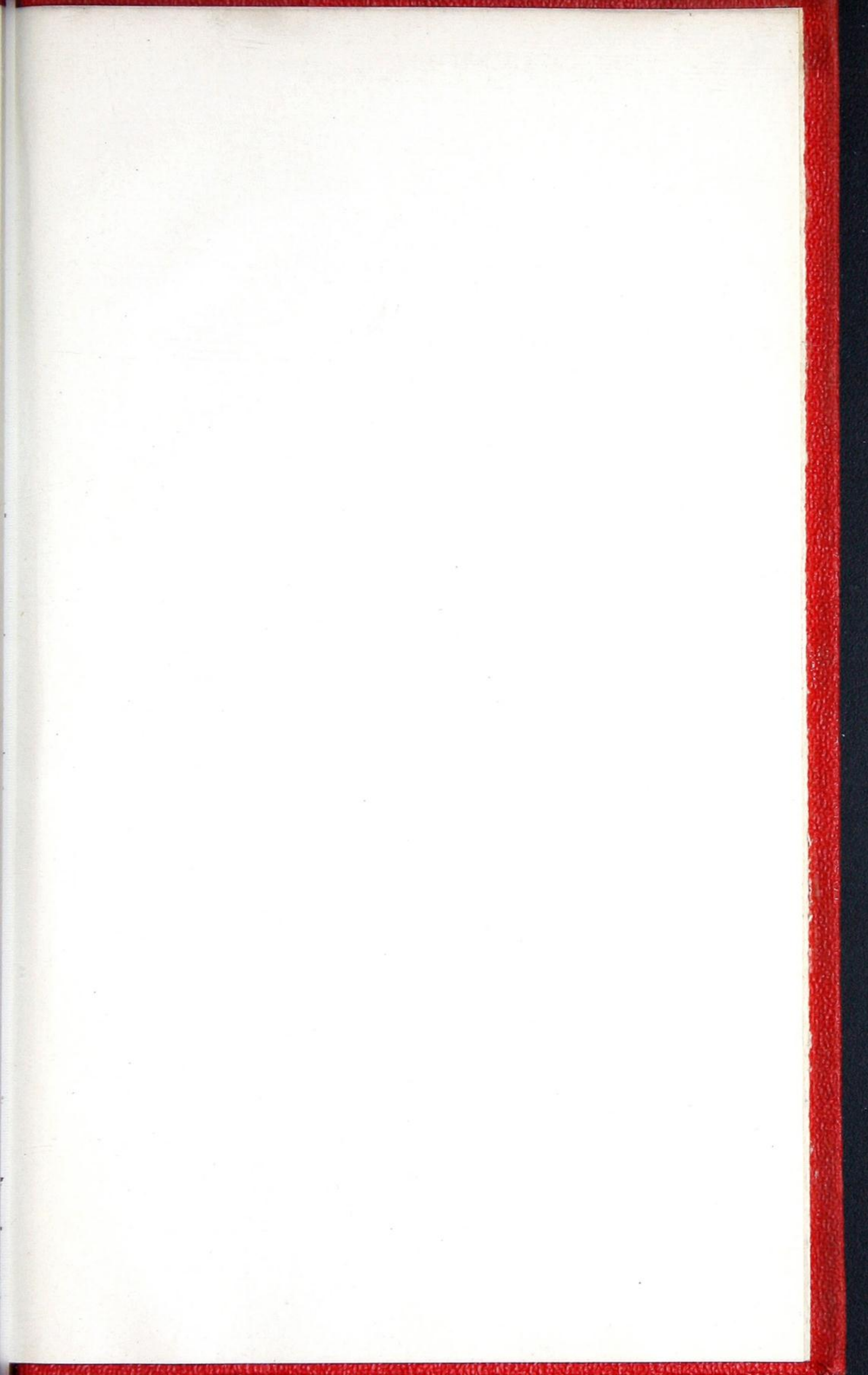
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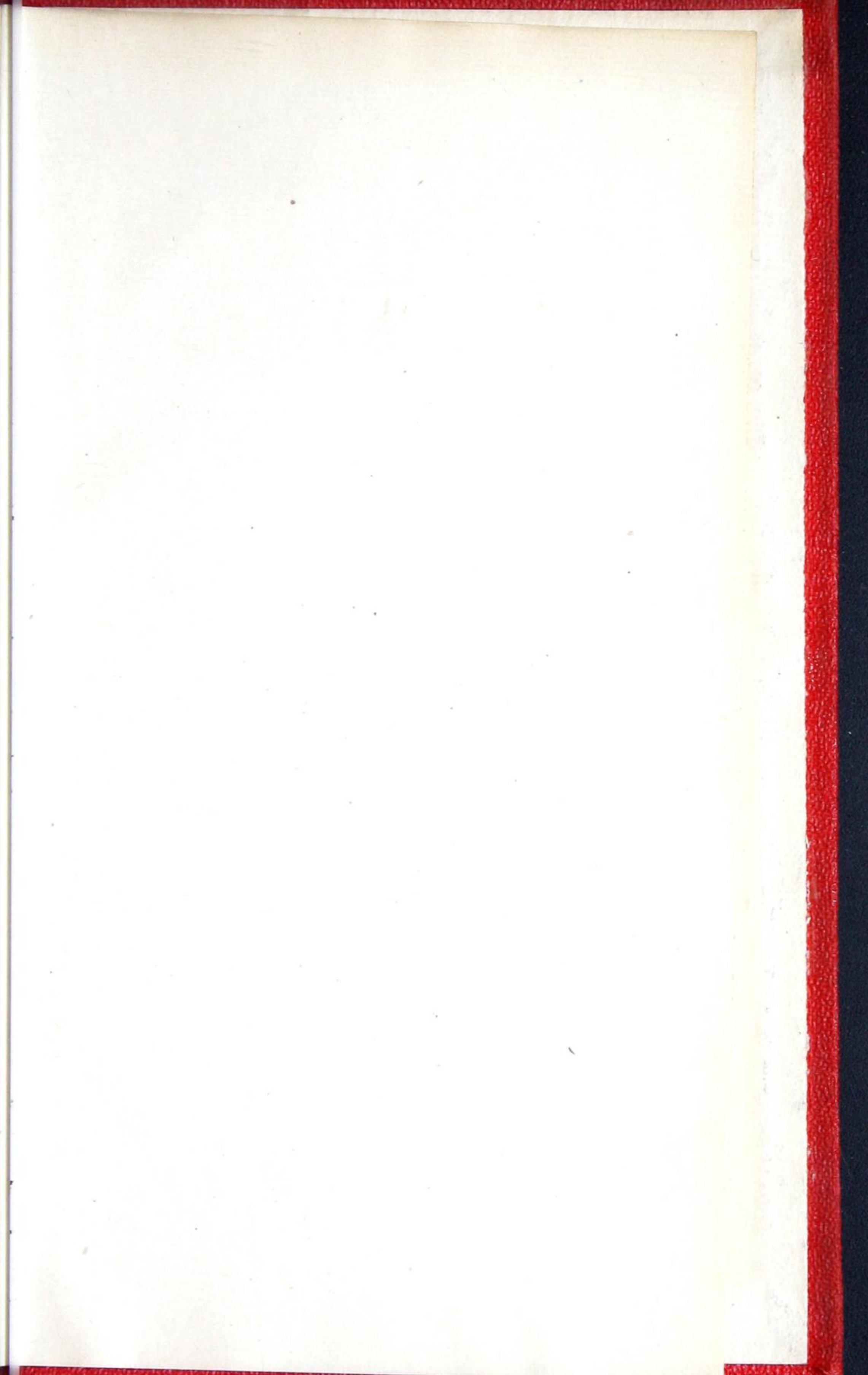
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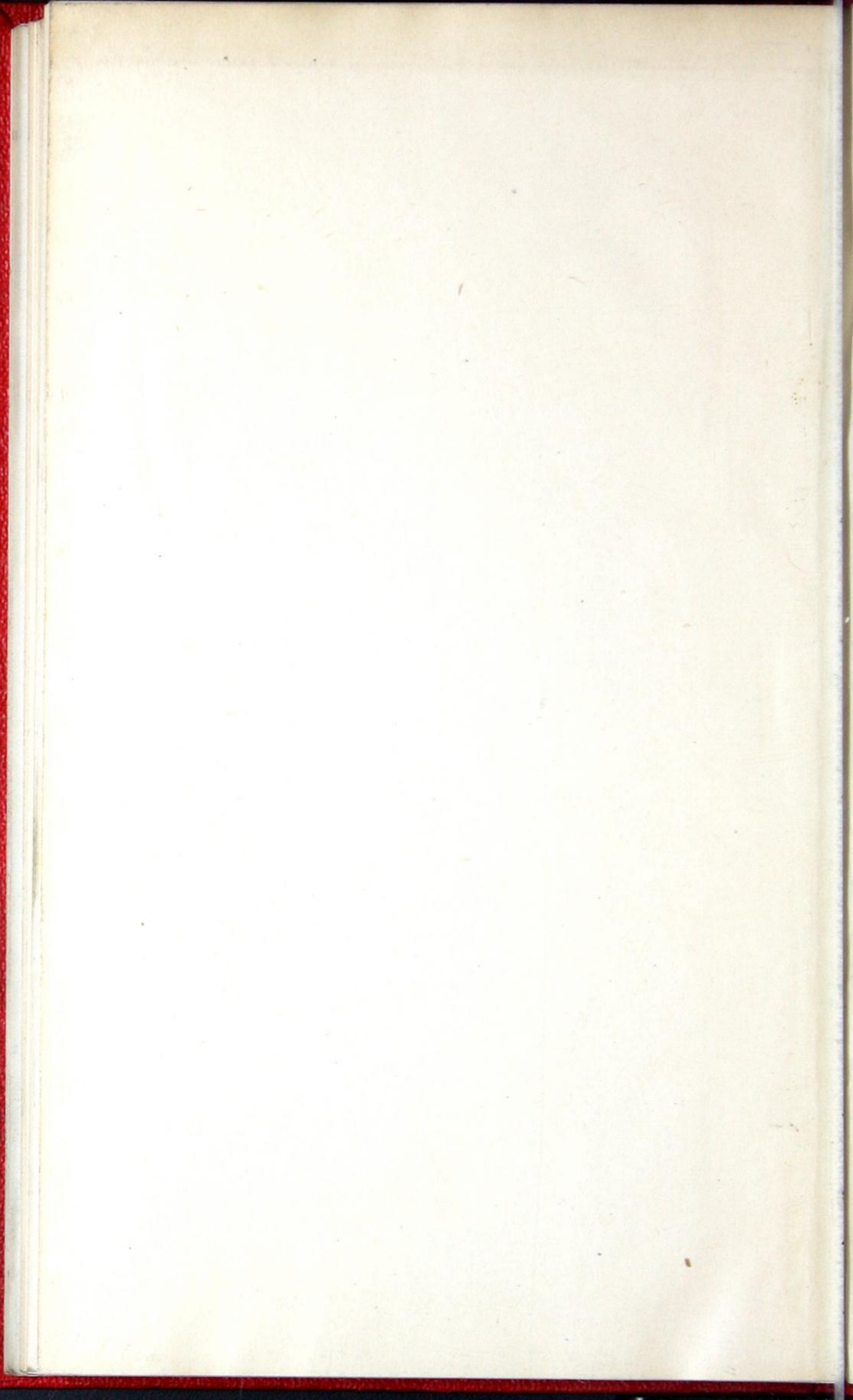
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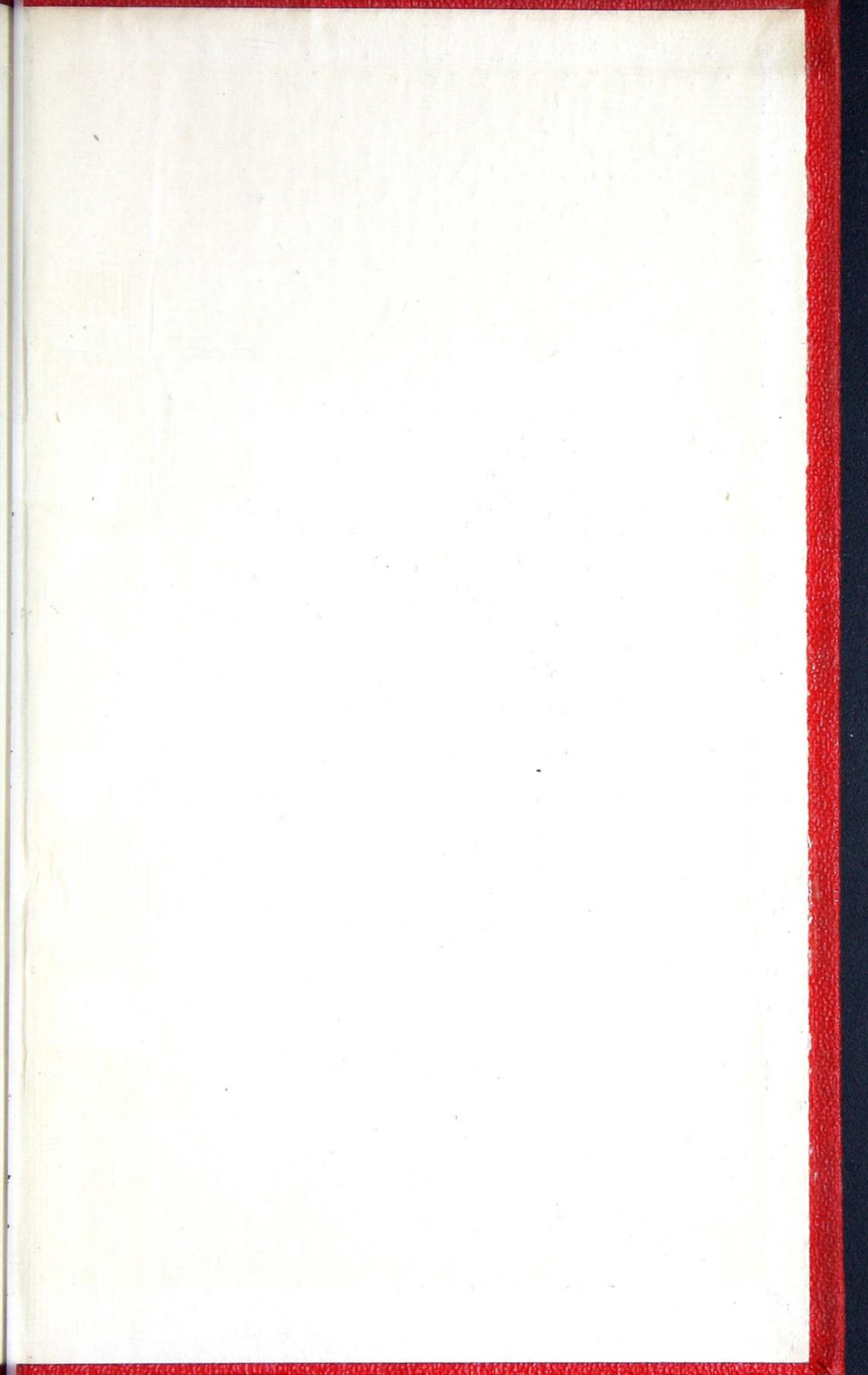
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WINDSOR RADIATORS



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WINDSOR TUBE RADIATORS

For twenty-six years the Taylor-Forbes Company, Limited, have manufactured heating materials of the highest quality which have become famous for the correctness of their engineering principles and superiority in design, construction and efficiency.

“Windsor” screw-nipple tube radiators are made in a wide variety of widths and heights to meet every requirement. They are presented to the public as something newer than the newest. **“Windsor” Radiators are the only radiators on the market with 2-inch large waterway at the bottom to allow free circulation.**

Coupled with these the fact that they are smooth and so graceful in appearance that they will fit in perfectly with the modern trend of interior decoration, it will be readily seen that they will satisfy the most fastidious.

TAYLOR-FORBES COMPANY
LIMITED

WINDSOR 3 TUBE RADIATORS



WINDSOR 3 TUBE RADIATORS

FOR STEAM OR WATER

Ratings and Sizes

No. of Sections	* Length 2½ ins. per Section	HEATING SURFACE			
		Height 38 ins. 3½ Sq. Ft. per Section	Height 32 ins. 3 Sq. Ft. per Section	Height 26 ins. 2⅓ Sq. Ft. per Section	Height 20 ins. 1¾ Sq. Ft. per Section
2	5	7	6	4⅔	3½
3	7½	10½	9	7	5¼
4	10	14	12	9⅓	7
5	12½	17½	15	11⅔	8¾
6	15	21	18	14	10½
7	17½	24½	21	16⅓	12¼
8	20	28	24	18⅔	14
9	22½	31½	27	21	15¾
10	25	35	30	23⅓	17½
11	27½	38½	33	25⅔	19¼
12	30	42	36	28	21
13	32½	45½	39	30⅓	22¾
14	35	49	42	32⅔	24½
15	37½	52½	45	35	26¼
16	40	56	48	37⅓	28
17	42½	59½	51	39⅔	29¾
18	45	63	54	42	31½
19	47½	66½	57	44⅓	33¼
20	50	70	60	46⅔	35

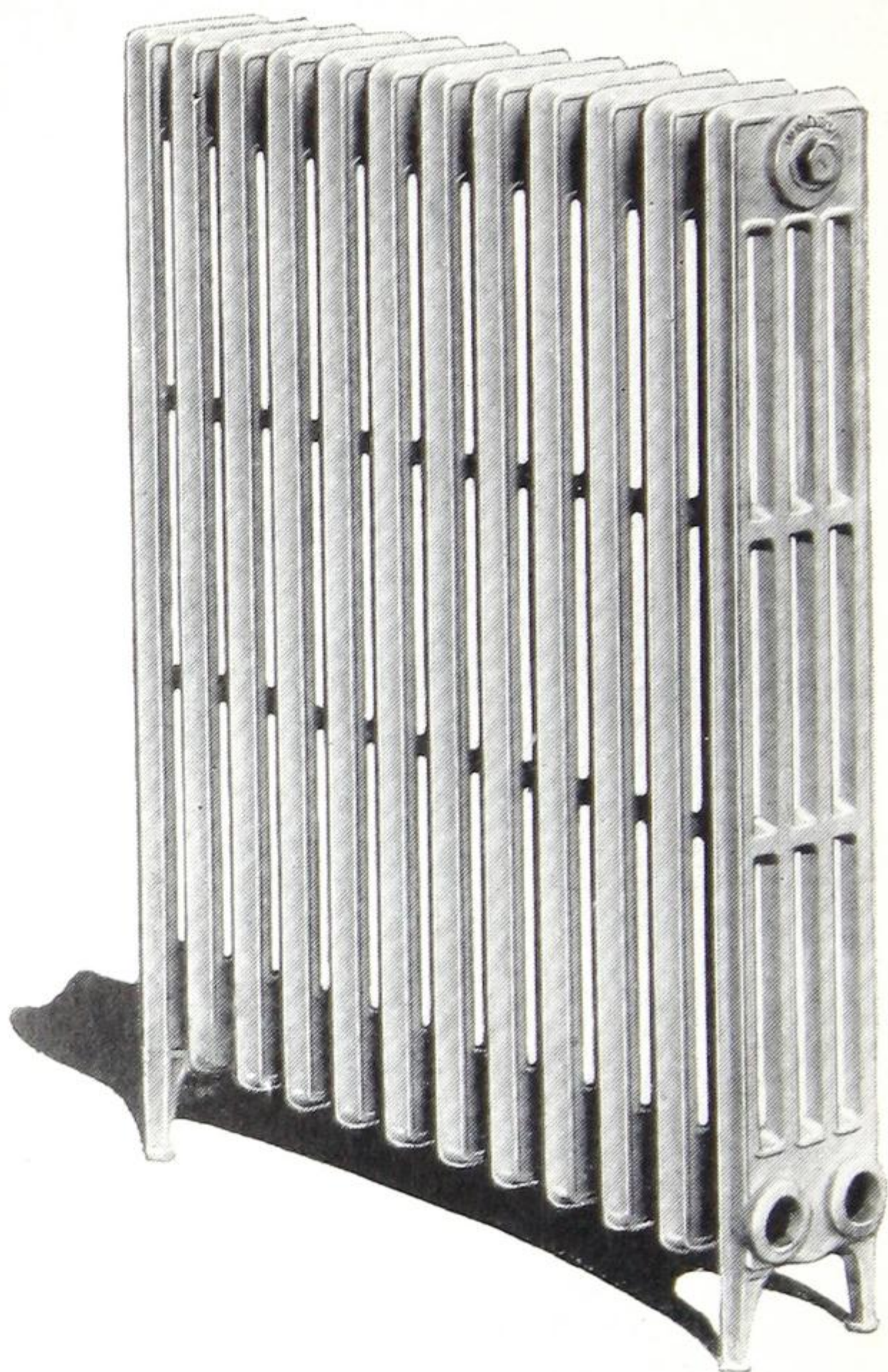
Made with twin hub and single tappings.

CONNECTIONS—Both Steam and Water. Extra heavy 1½-inch right and left threaded nipples at top, and 2-inch at bottom.

Windsor Tube Radiators are furnished, upon special order, with 6-inch legs.

*In estimating length of Radiator, allow ½-inch for each bushing or plug.

WINDSOR 4 TUBE RADIATORS



WINDSOR 4 TUBE RADIATORS

FOR STEAM OR WATER

Ratings and Sizes

No. of Sections	* Length 2½ ins. per Section	HEATING SURFACE			
		Height 38 ins.	Height 32 ins.	Height 26 ins.	Height 20 ins.
		4¼ Sq. Ft. per Section	3½ Sq. Ft. per Section	2¾ Sq. Ft. per Section	2¼ Sq. Ft. per Section
2	5	8½	7	5½	4½
3	7½	12¾	10½	8¼	6¾
4	10	17	14	11	9
5	12½	21¼	17½	13¾	11¼
6	15	25½	21	16½	13½
7	17½	29¾	24½	19¼	15¾
8	20	34	28	22	18
9	22½	38¼	31½	24¾	20¼
10	25	42½	35	27½	22½
11	27½	46¾	38½	30¼	24¾
12	30	51	42	33	27
13	32½	55¼	45½	35¾	29¼
14	35	59½	49	38½	31½
15	37½	63¾	52½	41¼	33¾
16	40	68	56	44	36
17	42½	72¼	59½	46¾	38¼
18	45	76½	63	49½	40½
19	47½	80¾	66½	52¼	42¾
20	50	85	70	55	45

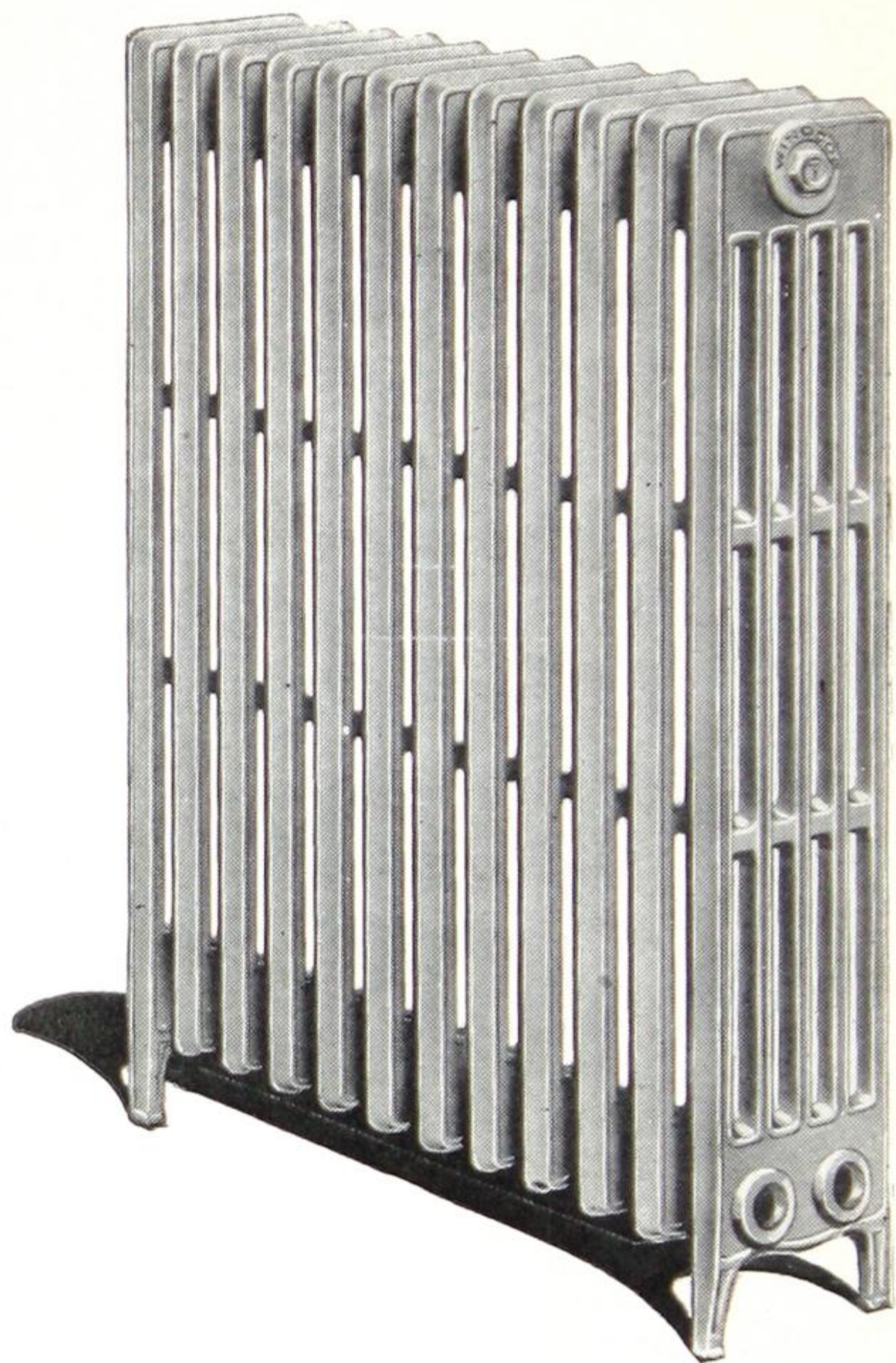
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CONNECTIONS—Both Steam and Water. Extra heavy 1½-inch right and left threaded nipples at top, and 2-inch at bottom.

Windsor Tube Radiators are furnished, upon special order, with 6-inch legs.

*In estimating length of Radiator, allow ½-inch for each bushing or plug.

WINDSOR 5 TUBE RADIATORS



WINDSOR 5 TUBE RADIATORS

FOR STEAM OR WATER

Ratings and Sizes

No. of Sections	* Length 2½ ins. per Section	HEATING SURFACE			
		Height 38 ins. 5 Sq. Ft. per Section	Height 32 ins. 4⅓ Sq. Ft. per Section	Height 26 ins. 3½ Sq. Ft. per Section	Height 20 ins. 2⅔ Sq. Ft. per Section
2	5	10	8⅔	7	5⅓
3	7½	15	13	10½	8
4	10	20	17⅓	14	10⅔
5	12½	25	21⅔	17½	13⅓
6	15	30	26	21	16
7	17½	35	30⅓	24½	18⅔
8	20	40	34⅔	28	21⅓
9	22½	45	39	31½	24
10	25	50	43⅓	35	26⅔
11	27½	55	47⅔	38½	29⅓
12	30	60	52	42	32
13	32½	65	56⅓	45½	34⅔
14	35	70	60⅔	49	37⅓
15	37½	75	65	52½	40
16	40	80	69⅓	56	42⅔
17	42½	85	73⅔	59½	45⅓
18	45	90	78	63	48
19	47½	95	82⅓	66½	50⅔
20	50	100	86⅔	70	53⅓

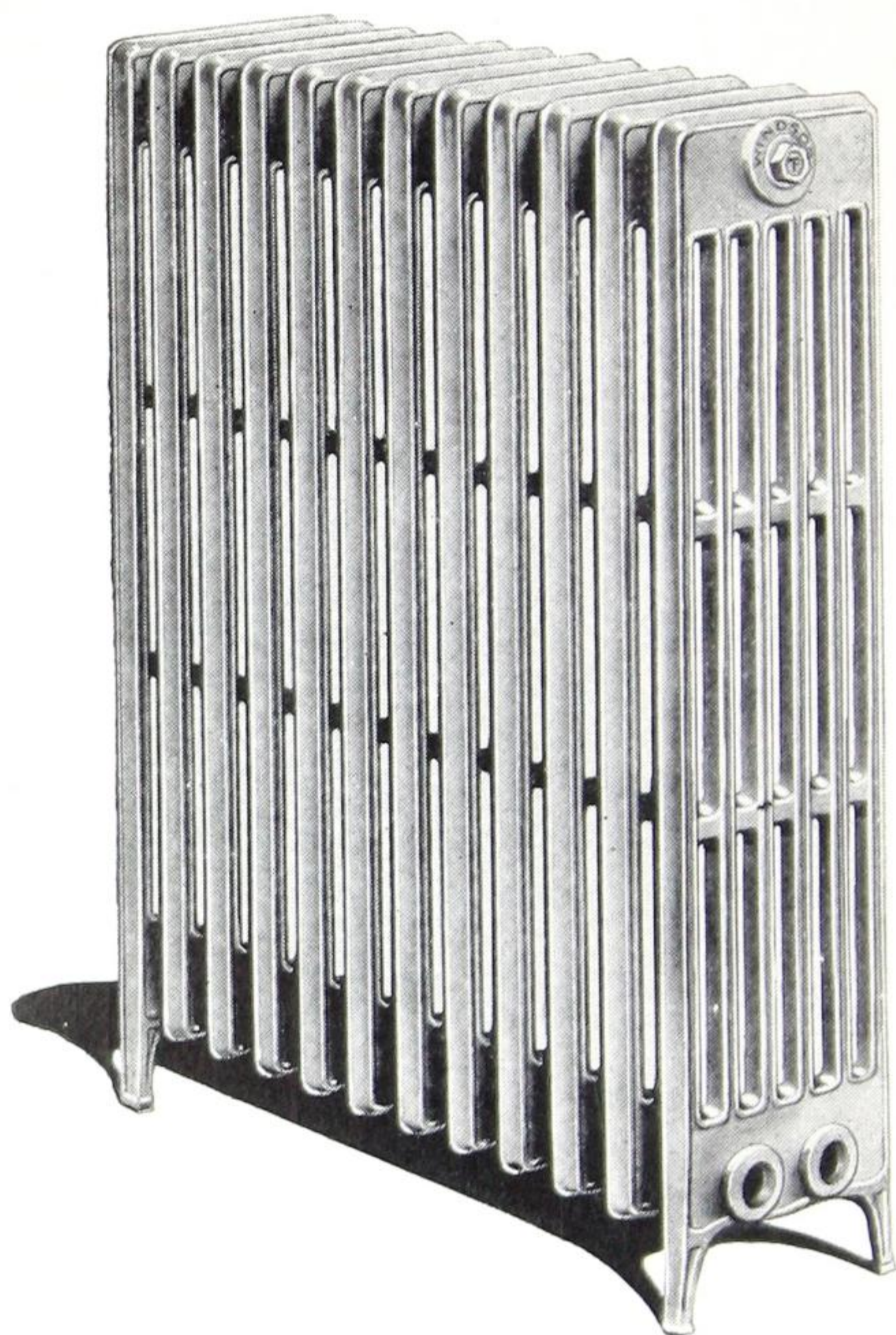
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CONNECTIONS—Both Steam and Water. Extra heavy 1½-inch right and left threaded nipples at top, and 2-inch at bottom.

Windsor Tube Radiators are furnished, upon special order, with 6-inch legs.

*In estimating length of Radiator, allow ½-inch for each bushing or plug.

WINDSOR 6 TUBE RADIATORS



WINDSOR 6 TUBE RADIATORS

FOR STEAM OR WATER

Ratings and Sizes

No. of Sections	* Length 2½ ins. per Section	HEATING SURFACE			
		Height 38 ins.	Height 32 ins.	Height 26 ins.	Height 20 ins.
		6 Sq. Ft. per Section	5 Sq. Ft. per Section	4 Sq. Ft. per Section	3 Sq. Ft. per Section
2	5	12	10	8	6
3	7½	18	15	12	9
4	10	24	20	16	12
5	12½	30	25	20	15
6	15	36	30	24	18
7	17½	42	35	28	21
8	20	48	40	32	24
9	22½	54	45	36	27
10	25	60	50	40	30
11	27½	66	55	44	33
12	30	72	60	48	36
13	32½	78	65	52	39
14	35	84	70	56	42
15	37½	90	75	60	45
16	40	96	80	64	48
17	42½	102	85	68	51
18	45	108	90	72	54
19	47½	114	95	76	57
20	50	120	100	80	60

Made with twin hub and single tappings.

CONNECTIONS—Both Steam and Water. Extra heavy 1½-inch right and left threaded nipples at top, and 2-inch at bottom.

Tube Radiators are furnished, upon special order, with 6-inch legs.

*In estimating length of Radiator, allow ½-inch for each bushing or plug.

MEASUREMENTS OF WINDSOR RADIATORS

Measurements are in inches
See Outline Page 10

	Hgt.	Heating Surface per Section	A Ins.	B Ins.	C Ins.	D Ins.	E Ins.	F Ins.
Windsor Six-Tube Radiator.	38	6	38	4 1/2	31 9/16	36 1/16	9 3/4	9 7/8
	32	5	32	4 1/2	25 9/16	30 1/16	9 3/4	9 7/8
	26	4	26	4 1/2	19 9/16	24 1/16	9 3/4	9 7/8
	20	3	20	4 1/2	13 9/16	18 1/16	9 3/4	9 7/8
Windsor Five-Tube Radiator.	38	5	38	4 1/2	31 9/16	36 1/16	8 1/16	8 3/16
	32	4 1/3	32	4 1/2	25 9/16	30 1/16	8 1/16	8 3/16
	26	3 1/2	26	4 1/2	19 9/16	24 1/16	8 1/16	8 3/16
	20	2 2/3	20	4 1/2	13 9/16	18 1/16	8 1/16	8 3/16
Windsor Four-Tube Radiator.	38	4 1/4	38	4 1/2	31 9/16	36 1/16	6 3/8	6 1/2
	32	3 1/2	32	4 1/2	25 9/16	30 1/16	6 3/8	6 1/2
	26	2 3/4	26	4 1/2	19 9/16	24 1/16	6 3/8	6 1/2
	20	2 1/4	20	4 1/2	13 9/16	18 1/16	6 3/8	6 1/2
Windsor Three-Tube Radiator.	38	3 1/2	38	4 1/2	31 9/16	36 1/16	4 11/16	4 13/16
	32	3	32	4 1/2	25 9/16	30 1/16	4 11/16	4 13/16
	26	2 1/2	26	4 1/2	19 9/16	24 1/16	4 11/16	4 13/16
	20	1 3/4	20	4 1/2	13 9/16	18 1/16	4 11/16	4 13/16

Standard Tappings.

Windsor Radiators, Single or Twin Connections.
50 square feet and under..... 1 x 1 inch

Above 50 square feet, but not exceeding

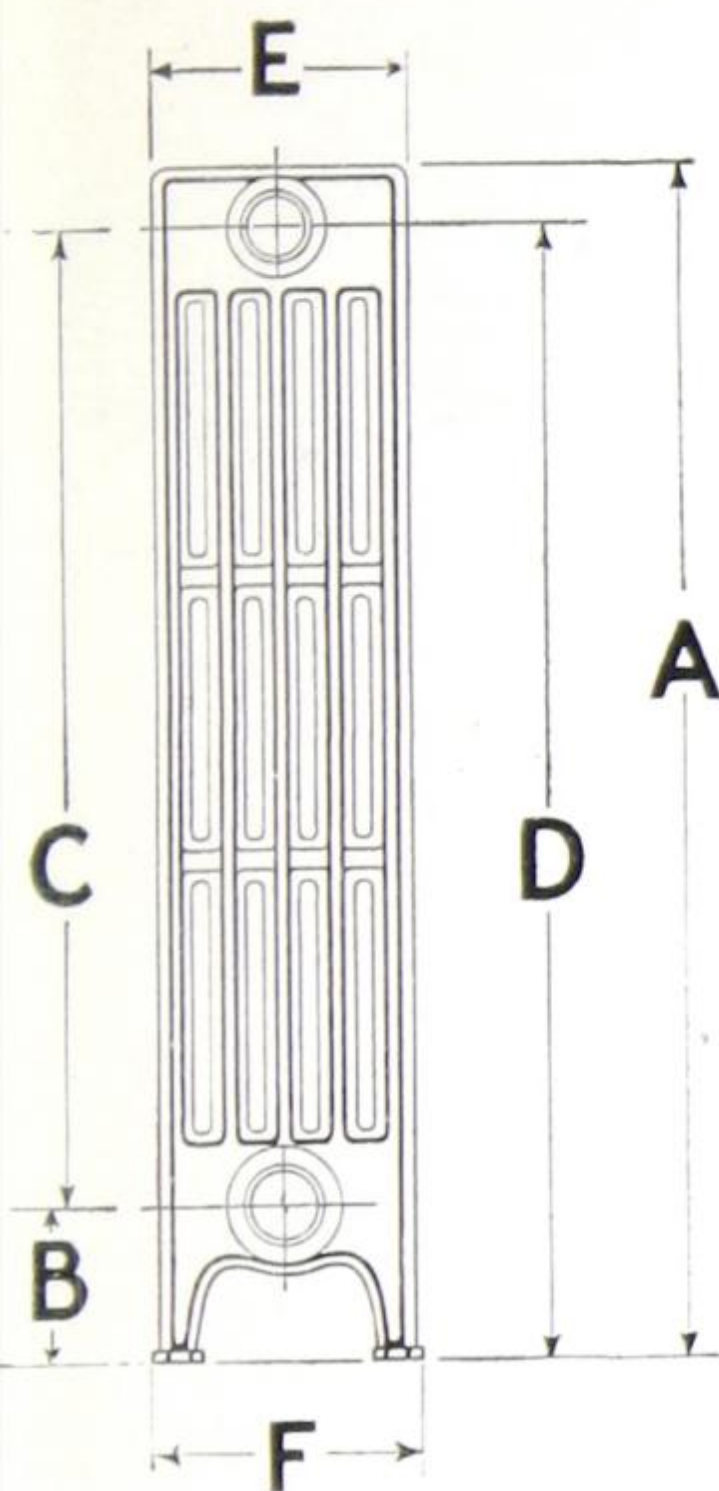
100 square feet..... 1 1/4 x 1 1/4 ins.

Above 100 square feet..... 1 1/2 x 1 1/2 ins.

All Twin Connection Radiators are tapped left hand. All single connection or opposite end tappings will be made with right-hand threads. All Radiators shipped with twin connection are tapped left hand unless otherwise specified on orders.

WINDSOR RADIATORS

Steam or Water



A—Total height.

B—Distance from floor to centre of bottom tapping.

C—Distance from centre of top tapping to centre of bottom tapping.

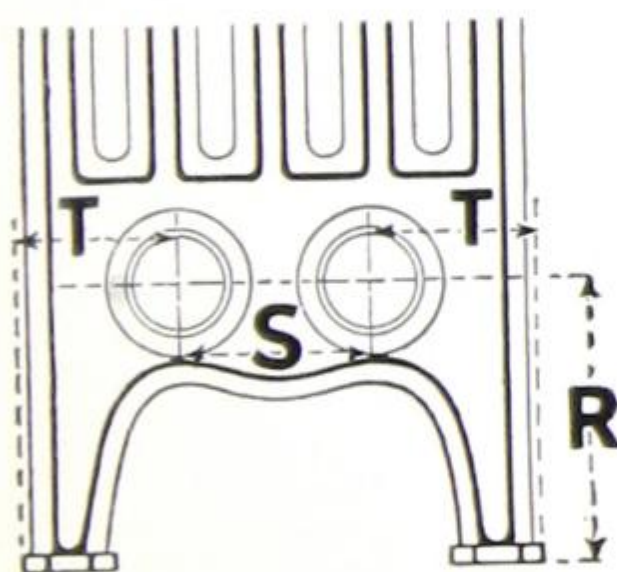
D—Distance from floor to centre of top tapping.

E—Width of section.

F—Width at feet.

Twin Tappings

Special Measurements



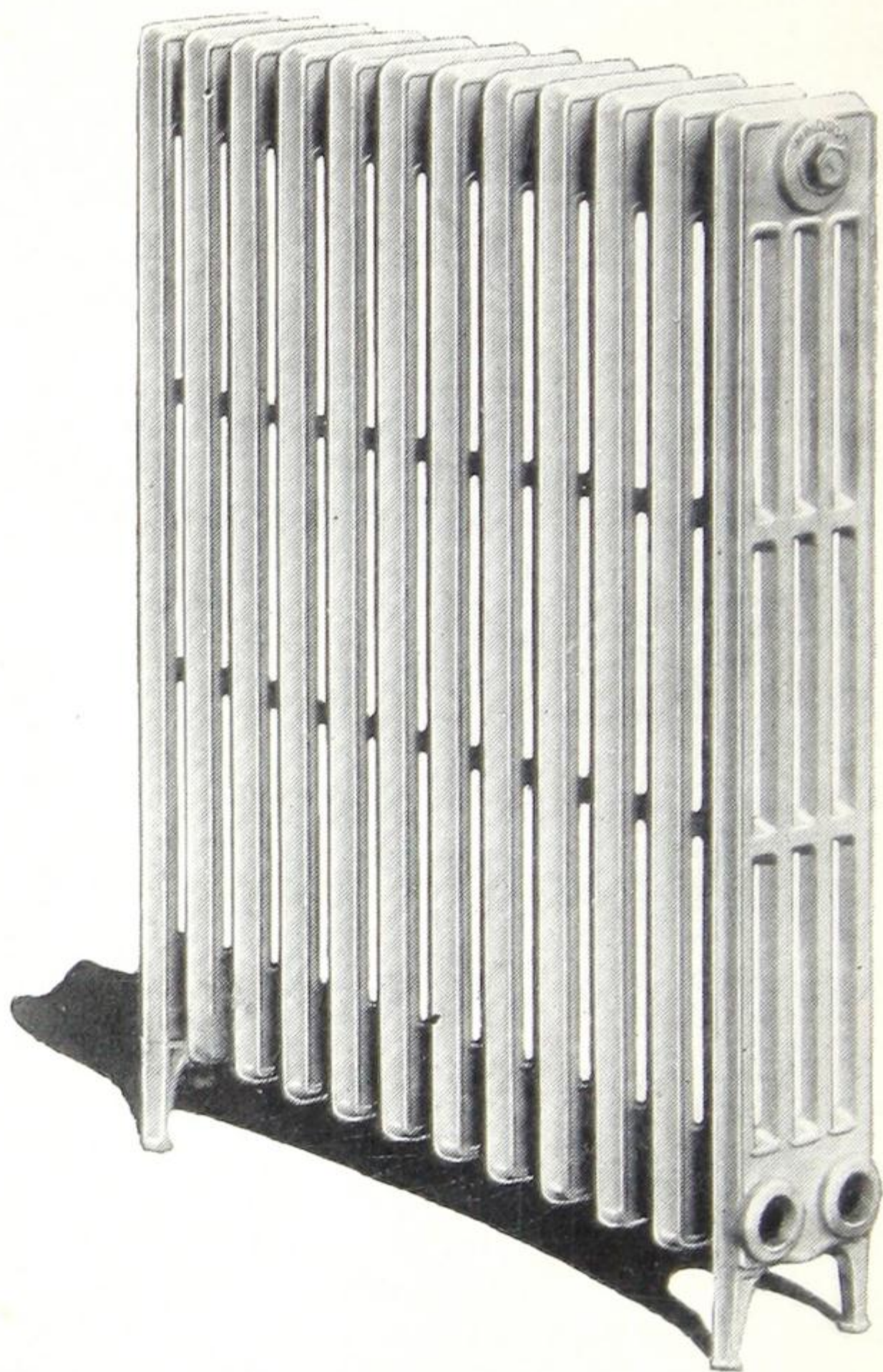
Measurements are in Inches

Pattern	R	S	T
Windsor Six-Tube	4 $\frac{1}{2}$	3 $\frac{1}{4}$	3 $\frac{5}{16}$
Windsor Five-Tube	4 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$
Windsor Four-Tube	4 $\frac{1}{2}$	3 $\frac{1}{4}$	1 $\frac{5}{8}$
Windsor Three-Tube	4 $\frac{1}{2}$	3 $\frac{1}{4}$	1 $\frac{5}{8}$

MEMO

TAYLOR-FORBES

WINDSOR RADIATORS



No: 113-R